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U. S. DEPARTMENT OF LABOR
JAMES J. DAVIS, Secretary

CHILDREN'S BUREAU
GRACE ABBOTT, Chief

MATERNITY AND CHILD CARE IN SELECTED RURAL AREAS OF MISSISSIPPI

By HELEN M. DART

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CONTENTS.

	Page.
Letter of transmittal	5
Introduction	7–8
Scope and method of the survey	7–8
Selection of counties	7
Sources of information	8
Main features in social and economic background of families visited	9–20
Population	9–10
Urban and rural population	9
Density of population	9
Means of communication	10–11
Railroads	10
Roads and mail service	10
Telephones	10
Farming conditions	11–15
Soils	11
Climate	11
Crops and live stock	12
Plantation system of land tenure	12
Tenure and acreage	13
Removals from farm to farm	14
Occupation of chief breadwinner	15
Illiteracy and education	15–16
Illiteracy	15
Schools	15
Home demonstration and agricultural agents	16
Public health work in the county	16
Housing and sanitation	18–20
Houses	18
Overcrowding	18
Screening	19
Water supply	19
Privies	20
Maternity care	21–34
The need for education	21
Maternity care available	21–23
Hospitals	21
Physicians	21
Midwives	21
Maternity histories of mothers visited	23
Prenatal care	24–26
Mothers receiving prenatal care	24
Analysis of care given	25
Use of home remedies during pregnancy	25
Information through reading	26
Attendant at confinement	26–28
Kind of attendant	26
Distance from attendant	28

Maternity care—Continued. Page.
Care of the mother after delivery 28–30
Medical care 28
Nursing care 29
Days in bed 30
Costs of confinement 31–33
Total costs and free service 31
Costs itemized 31
Cost of confinement and economic status of family 32
Maternal mortality 33–34
Maternal deaths in the county 33
Deaths from causes other than childbirth 34
Mothers' work in relation to childbearing 35–41
Usual farm and household work 35–37
Farm work 35
Household conveniences and household help 36
Work during pregnancy and after confinement 37–41
Kind of household help secured 38
Relief from work before confinement 38
Resumption of work after confinement 39
Effect of farming season on mothers' work 40
Care of children 41–50
Birth registration 41
Instruction in infant care 42
Feeding customs 42–43
Breast feeding 42
Solid food and family diet 43
Children's illnesses 43–47
Medical care 43
Nursing care 44
Deformities 45
Accidents 45
Illnesses 46
Home remedies for children 46
Infant deaths 47–50
Medical care 48
Causes of death 49
Children's health conferences 50–52
Previous public health work 50
Attendance and places of meeting 51
Examination of children 51
Exhibits 51
Results of the conferences 52
Summary 53
Conclusions 55
Index 57

ILLUSTRATIONS.

PLATE I. The conference at a country schoolhouse.
PLATE II. An examination at a Negro conference.

LETTER OF TRANSMITTAL.

UNITED STATES DEPARTMENT OF LABOR,
CHILDREN'S BUREAU,
Washington, June 14, 1921.

SIR: I transmit herewith a report entitled "Maternity and Child Care in Selected Rural Areas of Mississippi." This is one of a series of studies of child welfare in rural areas undertaken by the Children's Bureau.

The study was made under the general direction of the Hygiene Division of the Children's Bureau. The report was written by Miss Helen M. Dart, who was in charge of the field work. Dr. Frances Sage Bradley was in charge of the children's health conferences held in connection with the inquiry.

The Children's Bureau wishes to express its appreciation of the generous cooperation given by Dr. W. S. Leathers, secretary, Mississippi State Board of Health; Dr. R. W. Hall, director of the State Bureau of Vital Statistics; local physicians; school authorities; and members of the Woman's Division of the Council of National Defense.

Respectfully submitted.

JULIA C. LATHROP, *Chief.*

Hon. JAMES J. DAVIS,
Secretary of Labor.

MATERNITY AND CHILD CARE IN SELECTED RURAL AREAS OF MISSISSIPPI.

INTRODUCTION.

The present report upon Maternity and Child Care in Selected Rural Areas of Mississippi is one of a series of studies of the conditions affecting maternity and child welfare in rural sections of the United States begun by the Children's Bureau in 1916. That there is urgent need for the study of such problems and for the adoption of measures that will eventually lead to an amelioration of the conditions that give rise to them has already been shown in previous reports of the bureau[1] and need not be restated here in detail. A survey was undertaken under the direction of the Hygiene Division of the Children's Bureau in the spring of 1918 at the request of the Mississippi Board of Health, and the secretary of the board, in advocating the establishment of a bureau of child welfare, stated:

> This phase of health activity in Mississippi has been neglected in the past. No special provision has been made for conserving the health of the children of the State. There is no greater need in Mississippi to-day than the study of infant mortality with the hope of reducing deaths among children less than 2 years of age. * * * When it is known that thousands of children die in Mississippi from preventable causes before reaching 2 years of age, it is imperative that steps be taken to check and control this slaughter of the innocents.[2]

SCOPE AND METHOD OF THE SURVEY.

Selection of counties.—A county in the southern part of the State, where some public health work had already been done by the Mississippi State Board of Health, in cooperation with the International Health Board (formerly the Rockefeller Sanitary Commission), was chosen as the field for a series of children's health conferences, which included the examination by a Government physician of children under 6, simple talks to parents, stereopticon views, and ex-

[1] Children's Bureau Publication No. 26, Maternity and Infant Care in a Rural County in Kansas; Children's Bureau Publication No. 34, Maternity Care and the Welfare of Young Children in a Homesteading County in Montana; Children's Bureau Publication No. 46, Maternity and Infant Care in Two Rural Counties in Wisconsin; Children's Bureau Publication No. 33, Rural Children in Selected Counties of North Carolina.

[2] Report of the State Board of Health of Mississippi, June 1, 1915, to June 30, 1917, p. 17, Jackson, Miss., 1918.

hibits relating to child care. For the intensive survey of maternity and infant welfare a county in the northern part of the State was selected which was typical of the "hill country" of that part of the State in respect to the conditions of child care, general economic and farming conditions, and racial and industrial distribution of population. Comparatively little public health work had been done in the county, and while it was not progressive in this respect, neither was it the most backward in the State. The study was confined to rural communities in the northern county; the two county seats, towns of about 500 and 4,500 inhabitants where strictly rural conditions did not prevail, were not included in the area studied.

Sources of information.—General information was secured from the county health officer, the county superintendent of schools, the county agricultural agent, the home demonstration agent, from physicians, and from many other responsible persons in the county. But in this, as in all similar surveys made by the Children's Bureau, the information most pertinent to child and maternity care was secured through personal interviews with individual mothers by the woman agents of the bureau. Effort was made to secure interviews with the mother of every baby born in the area studied between April 1, 1916, and April 1, 1918. Information was obtained in regard to 685 babies (299 white and 386 colored) born to 675 mothers (295 white and 380 colored). In a few cases in which it was impossible to see either the mother or the father, information was secured from relatives and others in a position to know the facts sought. The local registrars for births and deaths helped in finding all the babies within the scope of the survey, and death certificates for all babies whose deaths had been registered were secured at the beginning of the work. Since birth registration was incomplete, a house-to-house canvass was made of the county.

MAIN FEATURES IN SOCIAL AND ECONOMIC BACKGROUND OF FAMILIES VISITED.

The county in which the intensive survey was made is located in the northern part of the State and is typical of the "hill country" of Mississippi with rolling hills, open fields, broad fertile river bottoms, and a good deal of cut-over woodland.

POPULATION.

The census of 1910 showed that the percentage of Negroes in Mississippi, 56 per cent, was greater than for any other State in the Union,[1] and in the county studied more than half the total population of 22,959 was Negro.[2] Of the mothers interviewed 56 per cent were Negro, and only 1 mother was foreign born.

Urban and rural population.—About 20 per cent of the population was urban, owing to the fact that there was one city of 4,649 inhabitants.[3] In spite of its size it exerted very little more influence for progress than did the other county seat, a village of about 500 inhabitants. The population of the county exclusive of these two towns was about 17,800 in 1918. Scattered over the county there were eight small towns in which living conditions were essentially rural. They varied in size from 10 to 475 inhabitants and contained from 1 to 12 stores. None of these towns had more than one physician in regular practice, and three had no physician at all. All but one had post offices and all but two were on the railroad. Of these two, one was about 7, the other about 9 miles from a railroad station. In none of them was there a town water supply or sewerage system.

Density of population.—In 1910 the density of the rural population of the State was 34.3 persons per square mile, of the county 35.2 persons per square mile.[4] In the open country it was seldom more than a quarter of a mile from one house to the next, and even in the rougher parts of the county it was unusual to visit a family who had no neighbors in sight. This was quite different from the county

[1] Thirteenth Census, 1910, Population, vol. 1, p. 135.

[2] Estimated for Apr. 15, 1918, on basis of Thirteenth Census, 1910, Population, vol. 2, p. 1058.

[3] Estimated for Apr. 15, 1918, on basis of figures given, Thirteenth Census, 1910, Population, vol. 2, pp. 1035 and 1058.

[4] Thirteenth Census, 1910, Population, vol. 2, pp. 1044–1058.

studied in Montana, where it was unusual to find families living less than one-half mile apart. Most of the Negroes lived on the river bottoms as tenants on the large plantations, while the whites lived in the hills where the plantations had been broken up into small farms.

MEANS OF COMMUNICATION.

Railroads.—Two divisions of the Illinois Central Railroad crossed the county from north to south. Stations were only from 4 to 7 miles apart. None of the families visited lived more than 10 miles from a railroad station. The large markets were St. Louis and Memphis. Shipments of cotton, hay, cattle, hogs, and other produce were arranged for in carload lots by the county agricultural agent. Only a very small part of the stock and grain raised in the county was used by the local market.

Roads and mail service.—On account of the many hills and gullies even the public roads were winding and had many steep grades. The soil was so sandy that the roads dried quickly, and so loose that they washed out easily and needed constant care to keep them in condition. However, the main roads were usually very good and well graded, and practically every part of the county was accessible by automobile. Even in bad weather the roads were seldom impassable for more than a few days at a time, and only a few instances were reported where a father had difficulty because of bad roads in getting a doctor or midwife to attend a confinement. According to the southern custom, most of the houses were not on the main road but back on the plantations. The roads leading to them were private and not so well worn or well kept as the public roads. Some of the houses were 1½ or 2 miles from the main road; a few were almost inaccessible by automobile even when the weather was good, because the roads leading to them were rough and steep or the bridges insecure.

Good roads made possible daily mail delivery for every part of the county. No place in the county was more than 3 miles from a rural mail delivery route and most places were not so far away as this.

Telephones.—Telephone lines followed most of the main roads. Of the 675 families visited, 84 white families and 2 colored had telephones in the homes. Nearly one-half were less than a mile from some neighbor who had a telephone, 182 were 1 to 3 miles distant, and only 20 of the families (19 of them colored) were reported as living over 5 miles from a telephone. Only 4 mothers reported trouble in getting a physician for confinement because the telephone service was cut off.

FARMING CONDITIONS.

Over four-fifths of the land of the county was in farms,[5] but it was estimated by the county agricultural agent that about one-half of this land was still unimproved, although more was being brought under cultivation each year. Much of the land under cultivation had not yet been cleared of stumps, and in many fields the trees had been girdled instead of cut in order that the land might be immediately planted in cotton or corn. Nearly one-half the farm acreage of the county was in woodland.[6]

Soils.—The soil of the bottom lands, though liable to overflow, afforded some of the best farming land of the State, while the upland soil was probably more suitable for grazing than for any other purpose. To quote from the State geological survey:

> Most of this region has been long in cultivation. The high, well-drained condition of the surface, the healthfulness of the climate and the fertility of the soil at an early period in the State's development invited settlement. In the antebellum days, under slavery régime, these lands were owned and worked in large plantations. As elsewhere in the State, cotton was the staple crop with just enough corn to supply the needs of the plantation. The methods of cultivation were very exhausting to the soil. Crops were, year after year, taken off the land and nothing returned to it.[7]

The report states further that the exclusive cultivation of cotton exhausted the humus and other elements of fertility. Since the Civil War the exhaustion of these lands had been more rapid than ever before, and careless terracing or circling of the hill slopes had caused many of them to wash out badly. It was only within the past few years that agricultural methods had begun to show improvement.

Climate.—Hot weather usually continues unbroken from the latter part of May to early October, and farmers count on a frost-free growing season of about seven months. The temperature does not rise any higher than it does in some northern States, but the long-continued unbroken heat and the humidity makes the climate more enervating. Only occasionally in a severe winter does the thermometer drop below zero.

The rainfall is well distributed throughout the year but the heaviest occurs in the late winter and early spring. The total precipitation for the year 1917 was 53.98 inches.[8] The snowfall is slight, even in the northern part of the State. The prevailing winds are from the south. Tropical storms and thunder showers which cause great damage to crops are not infrequent.

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[5] Thirteenth Census, 1910, Agriculture, Vol. VI, pp. 870–871.
[6] Thirteenth Census, 1910, Agriculture, Vol. VI, pp. 870–871.
[7] Mississippi State Geological Survey, Bulletin No. 12, p. 213, Jackson, Miss., 1915.
[8] Climatological data, Mississippi Section Annual Summary, 1917, p. 101.

Crops and live stock.—Until 1911, when the boll weevil appeared in the county, cotton was by far the most important crop and a large part of the foodstuffs consumed was imported. With the dwindling of the cotton crop to about one-third its former size, other crops had assumed a greater relative importance and more attention had been given to stock raising. Diversified farming had reacted beneficially on the people as well as on the soil. They no longer staked a whole year's effort on one crop nor depended on the market value of that crop to buy their foodstuffs. One of the illiterate colored farmers said that he and his fellow tenants on the plantation had been much more prosperous and independent since each household had begun to raise its own grain and meat and garden produce. For the first time in years they had been able to get out of debt at harvest time.

There were as yet few stock or dairy farms, but practically every farmer in the county was raising a few hogs and cattle for market, and a few farmers were shipping milk to a creamery outside the county. About three-fourths of the families visited owned some cattle and about the same number were reported as keeping hogs. Some mules and horses and a few sheep and goats were raised for the market. The number of sheep had decreased considerably since the law requiring the fencing of pastures made their upkeep more expensive. Of the 674 families reporting, 280 of the white and 279 of the colored families had milch cows. In 46 cases the family did not own the cow, but had the use of her as part of the rental contract or in return for some service. Fifteen white and 100 colored families neither owned, hired, nor had the use of a cow. It must be taken into consideration, however, that not all the families reporting cows had fresh milk all the year round, and the importance of milk in the children's diet needed emphasis here as in many other farming districts.

Plantation system of land tenure.—The conditions of tenant farming in the area studied were peculiar to the plantations of the South, the form of tenure having been developed there in the reconstruction period to supplant slavery conditions. To quote from the special study of plantation areas in the South made by the census in 1910:

> A large proportion of the tenants in the South actually occupied a very different economic position from that usually occupied by tenants in other parts of the country. The plantation as a unit for general purposes of administration has not disappeared, and in many cases the tenants on plantations are subjected to quite as complete supervision by the owner, general lessee, or hired manager as that to which the wage laborers are subjected on large farms in the North and West, and indeed in the South. Where this is the case a tenant is very similar in his economic position to the hired farm laborer, practically the only difference being that he confines his work to a

particular parcel of land which he works by himself and that he is paid by a share of the crop instead of by wages.[9]

Along with the plantation system of land tenure was the credit system peculiar to it. From the time, early in the year, when the tenant signed the contract until the crop was marketed the landlord "carried" him. Unless the planter wished to supply the tenant from his own commissary, he arranged credit for him through either a bank or a store for a weekly or monthly allowance for food and clothing, though in many cases the arrangements were less systematic. This advance, with interest, was deducted from the tenant's share of the crop at harvest. Since the colored tenant was usually ignorant and often illiterate, the bookkeeping was completely in the hands of the landlord; and there was, without question, some exploitation. One tenant working in partnership with another reported that after deductions had been made for the debts incurred for her living expenses she received $5 and 3½ loads of corn as earnings for the year's work.

Tenure and acreage.—The plantation system necessitated a large proportion of tenant farmers. Fifty-six per cent of the white families on farms were tenants and 89 per cent of the colored. Of the families who were reported as having farms, 75 per cent were tenants, 22 per cent owners, while for the remaining number the form of tenure was too irregular to be classified because the farmers were working farms belonging to their relatives, who in the majority of cases lived with the family but took only a minor part, if any, in the management and operation of the farm. Altogether only 45 farmers were renting on a cash basis or were paying a standard rent of a fixed amount of produce (usually a bale of cotton), while by far the greater proportion (over 80 per cent) of the tenants were renting on shares. Thirty per cent of the white and 68 per cent of the Negro tenant farmers were renting on half shares. Economically these were the lowest in the scale. The farm implements and work animals they used were owned by the landlord. More than four-fifths of the tenants of this class owned neither a horse nor a mule; about two-fifths owned no cattle; and nearly one-third owned no pigs. A quarter share rental was reported by 67 tenant farmers and 54 were paying one-fourth of the cotton and one-third of the corn. Cash and standard-rent tenants received but little supervision, but the share tenants were supervised with regard to the planting, cultivation, and harvesting of the crops.

Most of the small farms were in the rougher parts of the county, while the rich bottom lands were held by large plantation owners.

[9] U. S. Bureau of the Census, Plantation Farming in the United States, p. 7. Washington, 1916.

The number of small farms was large, but most of the land in the county was in large holdings. For the 121 farm owners for whom acreage was reported, 21 had farms of less than 50 acres, 28 had farms of 50 to 100 acres, and 35 had farms of 100 to 175 acres. There were 11 farms of 500 acres or more, and 2 of 1,000 or more. Farms belonging to colored farmers averaged smaller than those belonging to white farmers. The average size of farms among tenants was much smaller than among owners, because it was not customary for a man to rent more land than he and his family could work by their own labor, and furthermore rented farms included little unimproved land, while practically one-half of the land of the owned farm was not under cultivation. Of the tenants reporting acreage, 42 had farms of from 10 to 20 acres; 116 (nearly one-half) had farms of from 20 to 30 acres; and 57, farms of from 30 to 50 acres. There were only 20 tenant farms of more than 50 acres and none of more than 260 acres.

Removals from farm to farm.—As may be expected in a section where the proportion of tenant farmers is large, there was considerable moving from one farm to another. Nearly one-third of the families visited reported that they had lived in their present dwelling less than a year. Seventy-five families (1 in 9) had lived on the average less than a year in a place during married life, and nearly one-half of the families visited had lived on an average less than three years in a place. One mother said she had moved so many times she could not keep count of the number, while in another family the older daughter said they had moved every two years since she could remember. Families who move every year or two do not stay in one neighborhood long enough to get the full benefit of the schools, churches, and other community enterprises, and they have little interest in community projects, such as the building of a county hospital or the employment of a county nurse.

Removals were naturally more frequent among tenants than among farm owners. As the share tenant was supplied not only with a house but with most of his furniture, farm implements, and stock, moving was a relatively simple operation, in many cases consisting of loading all his household goods and family into a one-horse wagon and moving over to another farm without losing any time from work. The most shifting element of the population was the white tenant farmer. Only about 1 in 8 had stayed for an average of three years or more in one place. On the whole removals among the colored families were but little more frequent than among white families. The tendency to remain for a long time on one farm seemed to be stronger among the Negro than among the white families, considering the fact that the proportion of tenant families was much greater among the Negroes. Many spent their whole lives on one plantation.

Occupation of chief breadwinner.—In 93 per cent of the families visited the chief breadwinner was a farmer, farm manager, or farm laborer. Only 39 per cent of the white and 9 per cent of the colored farmers were farm owners. Of the remaining 7 per cent nearly one-half were railroad employees and the rest were professional men, merchants, salesmen, postal employees, or skilled mechanics. In 2 white and 16 colored families the mother was the chief breadwinner; 13 of these mothers were farmers, and 1 was a farm laborer.

ILLITERACY AND EDUCATION.

Illiteracy.—Illiteracy and low standards of education were serious enough in this part of the State to present a real obstacle to better health work. Many a mother refused to take the Children's Bureau pamphlets on Infant Care and Prenatal Care because she could not read and had no one who could read them to her. The percentage of illiteracy was much greater among the Negro than among the white parents, and the percentage of illiteracy among fathers was higher than among mothers. Of the white families visited, 9 fathers and 8 mothers were reported as illiterate, while of the colored families 110 fathers and 100 mothers were thus reported. In 5 white and 48 colored families neither parent could read or write. The figures for illiteracy indicate to only a small extent the ignorance which existed among most of the white tenant farmers and Negroes. These people had very few books and subscribed for practically no magazines or papers, and were unable to use readily the means which the more intelligent and progressive farmers employed to counteract the isolation of rural life.

Schools.—The schools of the county were handicapped by the lack of a compulsory education law.[10] When school attendance is voluntary it is likely to be irregular. The school session came in the months when it was least likely to interrupt farm work, and this made the term fall within the period of bad weather which caused much irregularity of attendance. The term, too, was so short that many children forgot between terms what they had learned, and many left school with only a slight knowledge of reading and writing. The term for rural schools for white children was five months in the southwestern part of the county and five and a half months

[10] A compulsory education law requiring 60 days' attendance, with exemptions, went into effect Sept. 1, 1918. This law was applicable only to those counties which elected to come under its provisions. (Mississippi Acts of 1918, ch. 258.) A new law requiring 80 days' attendance, with exemptions, went into effect Aug. 1, 1920. This law applied to the entire State, but permitted any county to release itself from the provisions of the act by a majority vote of the qualified electors at an election held for that purpose. (Mississippi Acts of 1920, ch. 156.)

in the northeastern, the difference being due to the additional income in the northeastern part of the county from the Chickasaw fund. Terms in the colored schools averaged about four months. Three or four districts levied a special tax for a longer term. Teachers of the first or highest grade ("grade" being based on educational requirements and type of examinations passed) were required to have only a common-school education. Practically all of the white teachers were of the first grade, with salaries averaging $50 a month. Most of the colored teachers were of the third grade, with salaries ranging from $16 to $25 a month.[11] The rural schoolhouse served to some extent as a social center for the community. Some of the schoolhouses were well-constructed buildings, while some were rough, unceiled frame houses with uncomfortable homemade benches. Several of them had no toilet facilities whatever. At the time of the survey the county had no consolidated schools, but in one or two localities there were good prospects that such schools would soon be established.

Home demonstration and agricultural agents.—The home demonstration agent of the county, employed under the joint supervision of the State and the United States Department of Agriculture, worked with the women and girls to promote better methods of household economy. She organized in close cooperation with the schools canning clubs, poultry clubs, and home economics clubs. An important part of her work was the promotion of better care and more intelligent feeding of babies and children. The first public-health nurse in the county will find her work made easier by the organizations already formed and methods already put in practice by the home demonstration agents. The agricultural agent worked with the men much as the home demonstration agent worked with the women. He made a scientific study of the soils of the county, advised the farmers in methods of cultivation and stock raising and promoted cooperative seed buying and the cooperative sale of farm products.

PUBLIC HEALTH WORK IN THE COUNTY.

The county was at the time of this survey the unit of administration in public-health work in Mississippi. One of the physicians resident in a county was appointed as health officer. His duties were to make monthly statements of mortality statistics compiled from the reports of the registrars of the various voting precincts of the county, to enforce quarantine regulations, and to act as assistant sanitary inspector in enforcing the rules of the State board of health in regard to the sanitation of public buildings, markets, milk depots,

[11] Statement of county superintendent of schools.

etc.[12] He was charged also with the enforcement of the law passed in January, 1916, for the prevention of blindness in the new born, which involved the recording of all cases of ophthalmia neonatorum, and the registration of the midwives of the county and their instruction in the use of the prophylactic measures prescribed by the law.[13] Most of the county health officers of the State worked only on part time and had to depend upon private practice for their living. Salaries of these part-time officers varied from $150 to $1,800 a year. The officer of the county studied received about $300 a year. In reviewing the results of this type of organization the secretary of the State board of health wrote as follows:

> In many of the counties the part-time man achieves results for which he is by no means compensated. In the main, the part-time county health officers of Mississippi have been, so far as the system will permit, reasonably effective public-health workers. But * * * this business of conserving the public health requires the undivided and aggressive effort of those who serve in this capacity.[14]

Special emphasis had been laid upon campaigns against the diseases peculiar to the region—pellagra, malaria, hookworm, and soil-pollution diseases. Special effort to reach rural districts had been made through the Division of Rural Sanitation.[15] In 1914 a study of the dietary causes of pellagra was made in cooperation with the United States Public Health Service in two orphanages in Jackson.[16] Intensive work had also been done on malaria. In 1910 the State board of health, in cooperation with the counties and the International Health Board, formerly the Rockefeller Sanitary Commission, began a State-wide survey of hookworm and soil pollution. None of the intensive health work had been done in the county studied because it is not situated in the part of the State where these diseases were most prevalent. The preliminary survey had shown that the infection from hookworm based on the examination of 570 children in the county was only 2.3 per cent.[17] Nevertheless, the propaganda attendant upon this work in other parts of the State had undoubtedly had some influence. The local physicians had done some educational work in connection with their practices. One physician said that when he began to practice, most of his time was taken up with treatment of malaria. His insistent warnings against

[12] Report of the Board of Health of Mississippi, 1915–1917, pp. 166–201. Jackson, Miss., 1918.

[13] Report of the Board of Health of Mississippi, 1915–1917, pp. 301–302. Jackson, Miss., 1918.

[14] Report of the Board of Health of Mississippi, 1915–1917, pp. 21–22. Jackson, Miss., 1918.

[15] Report of the Board of Health of Mississippi, 1915–1917, pp. 29–30. Jackson, Miss., 1918.

[16] Report of the Board of Health of Mississippi, 1915–1917, pp. 309–310.

[17] Report of the Board of Health of Mississippi, 1913–1915, p. 26.

mosquitoes had resulted in the screening of many of the homes in his community and a decrease in the prevalence of malaria. Another, in connection with his typhoid cases, had raised the standards of sanitation and cleanliness in some of the country homes.

HOUSING AND SANITATION.

Houses.—The three-room one-story house with a wide, open passage from front to back and chimneys for fireplaces at each end of the building was the type of farmhouse most often seen. Sometimes a porch extended across the whole front of the house, sometimes a kitchen was built on at the back. Many of the larger houses were built on much the same plan, while the smaller houses had a chimney at only one end. Many of the cabins were of rough boards or logs with generous cracks between. Only about 4 per cent of the houses were plastered on the inside, and about 30 per cent were finished with ceiling. A few of the board houses were finished with a second layer of boards on the inside; some were not even clapboarded. Many were papered with newspapers to keep out the cold. Some of the poorer cabins had no glass windows, but merely holes in the walls fitted with wooden shutters; when these shutters were closed the house was dark except for the light that came in through the cracks. Comparatively few houses were painted; some were whitewashed inside and out.

The houses among the Negroes were on the whole much poorer than those of white families, many of them being old ramshackle cabins in wretched condition. Less than 1 per cent were plastered and only 21 per cent were ceiled. For the greater part of the year such houses were comfortable, but in the few winter months there was real suffering from the cold. Over 96 per cent of the houses were set up on piles so that the circulation of air underneath might make them cooler and drier; unless this space under the house was inclosed, chickens, pigs, cats, and dogs used it as a shelter. The houses of the prosperous white planters were comfortably furnished, but many of the tenant cabins had only the most necessary things—a bed, a few chairs, and a table. In some houses rough homemade benches took the place of chairs; homemade cradles, beds, and tables were often seen.

Overcrowding.—It is surprising to find that there are as serious instances of overcrowding in the country as in large cities, but the fact that there is no crowding of one house against another does not insure plenty of room inside the house. When a family of 8 members or more lives in a house of two rooms or less (17 of the families were thus reported), there is bound to be crowding, lack of privacy, and inconvenience for the housekeeper, no matter how much space there may be outside the house.

The size of the families varied from 2 persons to 16; about 85 per cent of the white families had from 3 to 8 members; most of the Negro families had from 3 to 11 members. Fifteen colored families had 12 or more members, 4 had 14 or more. The house most commonly found had three rooms, but many of the families visited were living in smaller quarters; 15 families had only one room, and 117, or 17 per cent, had two-room houses. Less than one-half of the families visited were living in houses of four rooms or more.

Forty per cent of the families visited reported 2 or more persons per room; 10 white and 70 colored families were living with 3 or more persons to a room. About one-third of the white families reported 2 to 3 persons per sleeping room; about one-fourth 3 to 4 persons per sleeping room; 28, or nearly one-tenth, reported 4 to 5 persons per sleeping room. There were 27 instances of 5 or more persons per sleeping room. Only 23 per cent reported less than 2 persons per sleeping room. Overcrowding of sleeping rooms in Negro families was still more evident. More than two-thirds reported 3 persons or more per sleeping room, and only 6 per cent less than 2 persons. In 43 families (over 11 per cent) there were 6 or more persons per sleeping room; 6 cases were found of 8 in one sleeping room, 3 instances of 9, and 3 cases of 10 persons sleeping in one room.

Screening.—Even in northern Mississippi the climate is such that screening against mosquitoes is desirable as a precaution against malaria. Flies should be kept out of the house to guard against contamination of food, and in the summer screens are very desirable to keep chickens and live stock out of the house. In one of the homes visited, a goat was wandering around inside the house, and in other cases chickens had come in and made themselves at home on the beds. Only 23 per cent of the white families and 3 per cent of the colored families were living in houses screened at all doors and windows. One of the fathers said that he had done his best to screen the house, but there were so many cracks in the walls and floor that flies and mosquitoes came in anyhow.

Water supply.—The geologic formation was such that good water was easily obtainable.[18] Flowing wells varying in depth from 160 to 200 feet were found at both county seats and along the river bottoms. Among the families visited, 41 reported a drilled well, in many cases an artesian well, as the source of water supply; 156 families reported springs; 9 secured their water from a river or creek; 16 used cisterns; 109 had bored wells; and 344 (51 per cent) had dug wells. The artesian wells furnished much the cleanest water, since they were drilled to a considerable depth and the piping kept

[18] Crider, A. F., and Johnson, L. C.: Summary of the Underground Water Resources of Mississippi, p. 39. Water Supply and Irrigation Paper No. 159, U. S. Geological Survey, Washington, 1906.

out surface water; river or creek water was liable to pollution from animals and fowls, and was usually muddy; springs, unless carefully protected, were likely to be dirty; and many of the dug wells were insufficiently protected from surface pollution. The bored wells were subject to much the same dangers from surface water as dug wells, but the opening was so much smaller that animals or insects were less likely to get in. Many of the dug wells were equipped with a windlass or pulley, which made them easier to use, but did not insure any more cleanliness. Eight families had water in the house, and in 21 cases the source of water supply was on the porch. For more than one-third of the families the source of water supply was less than 25 feet from the house; for more than one-half, less than 100 feet. On the other hand, about one-third of the families had to go 100 yards or more, and 53 had to go a quarter of a mile or more. Negro mothers reported on the whole longer distances from water supply. A few did not have wells on the premises, but had to go to a neighbor's for water; in some cases one well served a group of tenant houses.

Privies.—The disposal of human excreta is a particularly important problem in the South, where special precautions are needed against soil pollution diseases. The survey showed that this problem had hardly been touched in the area studied. Among white families, 61 per cent had no toilets whatever; among Negro families, 85 per cent had no toilets. Of the 166 families who had privies, 143 reported the open-back type, in which the refuse is unprotected not only from flies but also from chickens, pigs, and other domestic animals. Only two families had water-closets. The State board of health was doing effective work in rural sanitation, but thus far little of it had touched the county studied. The report of the State board of health for 1913 to 1915 [19] showed the results of an investigation of sanitary conditions in over 500 rural homes of the county; 303 had open-back privies and 270 had no privies. This gave the county a sanitary index based on the type of privies found of 5.2 on the scale of 100. The fact that this index was about the average for the whole State indicated that the problem was State wide.

[19] Report of State Board of Health of Mississippi, 1913–1915, p. 27.

MATERNITY CARE.

THE NEED FOR EDUCATION.

In Mississippi as well as in other parts of the country ignorance of the value of good maternity care was largely responsible for the lack of it, and several physicians in the county stated that the most important factor in getting adequate care of this kind was to educate the mothers to recognize the need of it. One physician said that when he heard incidentally that mothers were having swollen feet and other dangerous symptoms during pregnancy, he could not convince them of the necessity of reliable medical advice, and they considered visits to him unnecessary. The board of health attributed the high maternal mortality rate in the State to the fact that "a very large majority of the confinement cases among the Negroes are attended by Negro midwives, in which case little protection is afforded the patient, consequently the death rate from this cause is unusually high. It is also true that a large percentage of the confinement cases in this State as a whole are not attended by licensed physicians."[1]

MATERNITY CARE AVAILABLE.

Hospitals.—At the time of the study the hospital nearest the county was located at Memphis, Tenn., nearly 100 miles away, and the nearest one that received patients free of charge was at Jackson, over 100 miles away. Distance and expense made hospital care impossible for the great majority of mothers and children of the county. Only one of the 675 mothers scheduled had been confined in a hospital.

Physicians.—At the time of the survey there were 14 physicians in regular practice in the county, and, in addition, there were 3 or 4 who had retired from active practice, 4 or 5 who had enlisted for war work, and 1 or 2 who held no licenses but occasionally helped their neighbors in case of illness.

Midwives.—There were probably over 100 midwives practicing in the county during the period covered by the survey, and 87 of these (8 white and 79 colored) were interviewed by the agents of the Children's Bureau with the object of finding out the status of midwifery in the county. In respect to education, the white midwives

[1] Report of the Board of Health of Mississippi, 1915–1917, p. 111.

were superior to the colored, as all could read and write, while two-thirds of the colored midwives were illiterate; but on the whole the white midwives did not differ either in training or practice from the Negro midwives. The information gleaned from the interviews disclosed the fact that none of the midwives had had adequate training, and most of them lacked even the elementary education that would make such training possible.

Various accounts were given as to the training received to fit them for midwifery and the reasons for adopting this practice. Some of them had been taken to confinement cases and taught by physicians; some were midwives because their mothers and grandmothers had been; others had become experienced in handling emergencies or in bearing their own children; while still others said that they had been "called by the Lord." Many of them believed in various superstitions such as "Girls come at the full moon and boys on the new moon," and "Babies born on a wasting moon haven't all their senses." One midwife always cut the cord long because she had heard the saying, "Long cord, long life." Many of the midwives were very old; and decrepit, before-the-war "aunties" had more prestige among their neighbors than any of the younger midwives. One of those interviewed said: "I'm not going out on night cases any more, because I'm getting old and can't keep awake."

Some of their methods were amazingly primitive. Over nine-tenths used no antiseptics whatever in making preparations for delivery; one said: "No washing is necessary if grease is used plentifully." Various questionable expedients were used to bring the afterbirth; some of the midwives used a method of warming the patient suddenly by putting her over a bucket of hot ashes or burning feathers, while two advocated putting an umbrella or a black hat over her face. Some of the more intelligent ones knew that childbed fever was caused by uncleanliness and tried to guard against it, but among many the old custom still held of not changing the bed coverings for at least three days.

Many of them said that they always called a doctor when any complication occurred, but several told of attending cases of adherent afterbirth, severe hemorrhage, breech presentation, prolonged labor, and stillbirth without the aid of a physician, and it is probably true that many of them failed to recognize minor complications and mild cases of childbed fever. The midwife's most dangerous fault was her failure to recognize her own limitations; ignorance prevented her from recognizing cases where the attention of a physician was imperative, and in many cases it fostered a fatalistic attitude which was manifested in such expressions as "Women are born to suffer and it's wrong to interfere," and "If the baby is born to die, nothing can be done."

Several of the more intelligent midwives said that they would be glad to have a county nurse to advise them and to teach them better methods of practice. At the time of the survey there were no rural county nurses in the State, and practically nothing had been done in the area studied in regard to the supervision of midwives beyond urging them to register births. In 1916 the State legislature passed a bill for the prevention of blindness from inflammation of the eyes of the newborn, and the State board of health (1917), in the enforcement of the law, required that all midwives register with the county health officer at least once a year; that all midwives as well as physicians use a 1 per cent solution of silver nitrate in the eyes of every newborn baby, and report cases of inflammation of the eyes within six hours after they had been observed. At the time of the survey the law was not being enforced in the county, as was shown by the fact that only 3 of the 87 midwives interviewed reported having used any drops in the eyes at birth.

MATERNITY HISTORIES OF MOTHERS VISITED.

The maternity histories obtained from the mothers showed frequent pregnancies and large families. It was customary for girls to marry early and to begin bearing children when quite young. Almost one-tenth of the mothers whose ages at marriage were reported had been married before they were 16 years of age: one-third of them before 18; and slightly over three-fifths before 20. Very early marriages were more common among the colored mothers than among the white; about 1 in 8 had married before the age of 16 (two at less than 14), and nearly two-fifths when less than 18. Of the white mothers 13 said they had been less than 17 years old at the time of their first confinement, and 102 under 20. Of the colored mothers, 79 reported the first confinement at less than 17 years, and 227 under 20 years. About 1 in 7 of the mothers visited had been under 20 when the baby scheduled was born, and 28 of these had had two or three previous confinements. Nearly one-half (318) were in the age group 20 to 30 years; less than one-third were in the group 30 to 40 years. More than one-half of all mothers had had four or more pregnancies, and nearly one-fourth had had seven or more. Eighteen per cent of the white mothers and 28 per cent of the Negro mothers had had more than 6 pregnancies. One white mother and 9 Negro mothers had had more than 12 pregnancies.

Sixty-four of the 380 Negro mothers were unmarried at the time the baby scheduled was born; 52 had never been married; 6 had been married at some time previous; 6 were married after the baby was born. Half these mothers were under 20 years of age, 7 were under 17 years of age. Fifty per cent had had one or more pregnancies previous to the birth of the baby scheduled.

PRENATAL CARE.

Mothers receiving prenatal care.—The figures relating to prenatal care point plainly to the conclusion that lack of prenatal care was due in large measure to ignorance of the need for it. Only 116 mothers, about 1 in 6, had any prenatal care whatever, and of these only 9 had care because they thought that pregnancy was in itself a reason for seeking medical advice. In only 9 cases of the 116 could the care received be classed as fair, and in only 1 case was the prenatal care adequate.[2] Of these 10 mothers who had adequate or fair care, all had either had difficulties in previous confinements or such illness during pregnancy that attention from a physician seemed imperative.

The standards of maternity care were much lower among the Negroes than among the whites, the proportion of Negro mothers receiving some prenatal care being just about half that for the white mothers. Only 45 of the Negro mothers, 12 per cent, had any care at all, and only 1 of these had fair care; 10 had a physical examination and 3 a urinalysis.

While illness seemed to have been responsible for prenatal care in the majority of cases, it can not be assumed that all mothers who felt the need of care sought a physician. One white mother said that she did not feel well all through her pregnancy, though not sick enough to call a doctor. One of her older daughters was strong enough to do the housework so the family could get along. Another mother said she suffered a great deal from varicose veins but did not see a physician. Still another had no prenatal care, even though hardly able to be about during the last three months of pregnancy.

Although ignorance of the need of good prenatal care was in a large measure accountable for its lack, yet there were other factors that entered in, such as family income, distance from doctor, and traveling facilities. It is significant that the proportion of mothers receiving prenatal care was highest among families in which the chief breadwinner was not a farmer, and that they lived in or near towns, not far from a doctor. The heads of these families were for the most part ministers, doctors, merchants, salesmen, skilled mechanics, and railroad employees in the towns; over three-fourths of them were white.

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[2] Prenatal care was classed as: *Adequate*, if there had been a monthly urinalysis, fifth to ninth months; if the mother had been under the supervision of a physician, fifth to ninth months; if an abdominal examination had been made, and, in the case of a first child, if pelvic measurements had been taken. *Fair*, if urinalysis had been made but less than five times at monthly intervals, if the mother had had some supervision by a physician, and if an abdominal examination had been made, and, in case of a first child, if pelvic measurements had been taken. *Inadequate*, if there had been visits to a physician, but no urinalysis, no abdominal examination, or, in the case of a first child, no pelvic measurements. Urinalysis with no visits to physician was also counted as inadequate care.

Analysis of care given.—In the majority of cases of women receiving some kind of prenatal care the matter ended when the mother had seen a physician. There was no realization of the importance of urinalysis, still less of abdominal and pelvic examination. Study of the number of visits, urinalysis, and kind of physical examinations made brought out the fact that 9 of the 116 mothers receiving care had urinalysis only, and did not see a physician personally. Of the 107 mothers reporting visits to or from a physician, 53 reported a single visit. Less than one-third of the 116 mothers had one or more urinalyses made during pregnancy, and 92 per cent of these mothers were white. It is interesting to consider some of the few cases in which the need of such care was realized. One mother had learned through reading and through consultation with a trained nurse that monthly urinalysis should be made, and accordingly sent specimens to her physician during the last five months of pregnancy, although she did not see him personally. In another instance the grandmother who came to stay with the mother insisted upon urinalysis because she had heard that serious complications might result from kidney trouble. One mother during pregnancy had convulsions which her physician said were caused by kidney trouble and necessitated regular urinalysis, but she insisted that they were caused by a sunstroke she had had as a girl, and refused to send specimens after the second time. Her attitude is typical of a large proportion of mothers visited. In one case a mother who had had alarming symptoms during pregnancy had been told by her physician to send specimens of urine for examination, but her husband, more through ignorance than ill nature, refused to act as messenger.

Only four of the midwives reported it as their custom to see the mother during pregnancy; six said they might make some examination if they happened to see the mother before confinement. There were often chance meetings, of course, during which the mother casually sought advice; some mothers consulted the midwife when they came to engage her, and some called her in when they were not feeling as well as they thought they should; but for the great majority of confinement cases the midwife was summoned only after labor had begun.

Use of home remedies during pregnancy.—Aside from the advice which can properly be classed as prenatal care, some mothers learned something about prenatal care through reading or took medicine not prescribed by a doctor. Two were instructed by a trained nurse. A few consulted midwives, but in the majority of cases the advice given could not be considered any better than that which might have been given by any experienced neighbor. Advice was also picked up

from various other sources. One mother used liniment purchased from an agent who was canvassing the county; while another said she had written to a firm in a northern city for medicine. More than one-half (most of them Negroes) of those who used home remedies said that they took some kind of patent medicine. One mother said she had taken six bottles of a patent medicine during her last pregnancy, and another said that she had taken "more patent medicines than she could mention" during the 10 years she had been "complaining." Simple home remedies, such as castor oil, magnesia, calomel, kerosene, and camphor, were also used, and several Negro mothers said they took teas of various kinds, such as "tansy tea" or "pepper tea."

Information through reading.—Thirty-two white mothers and 14 colored had read something about the care needed by a pregnant woman. It can not be supposed, however, that the literature read was really instructive in every case, for almost none of the books mentioned were standard. Several were general "doctor books," which dealt with many subjects besides childbirth; others were pamphlets or almanacs published as advertisements; while many others were advertisements designed primarily to promote the sale of patent medicines. More than one-half of the Negro mothers who said they had received some instruction through reading had only read advertisements of this kind. Probably only the 19 mothers who read the current women's magazines and farm papers received on the whole up-to-date and authoritative instruction.

ATTENDANT AT CONFINEMENT.

Kind of attendant.—Only two-fifths of all the mothers studied were attended by a physician at confinement, while nearly three-fifths were attended by midwives. The remainder, only 4 per cent, were attended either by their husbands or by other women who were not midwives. One mother had no attendant at all. In a few instances some attempt was made to secure a physician, but the call did not reach him on account of interrupted telephone service or bad roads. In several of these latter cases the mother was attended by a wholly inexperienced person or by a Negro midwife. One mother told of being alone with her sister and husband when the baby was born. Her husband, realizing that the baby would be born before the doctor could possibly arrive, called in his wife's sister. She knew nothing about confinement cases, but "risked cutting the cord." Others told of very similar experiences.

Number and per cent distribution of scheduled mothers of specified race according to attendant at confinement.

Attendant at confinement.	Total mothers.		Race of mother.			
			White.		Negro.	
	Number.	Per cent distribution.	Number.	Per cent distribution.	Number.	Per cent distribution.
Total confinements	675	100.0	295	100.0	380	100.0
Physician	266	39.4	234	79.3	32	8.4
Midwife	382	56.6	48	16.3	334	87.9
Other woman	24	3.6	12	4.1	12	3.2
Father	2	.3	1	.3	1	.3
None	1	.1	0	.....	1	.3

The choice between physician and widwife seemed to depend in some degree upon custom. Seventy-nine per cent of the white women were attended by physicians, while nearly 88 per cent of the colored mothers were attended by midwives. One instance was found of a Negro family who lived in town only a few blocks from a physician, but sent 3 miles into the country for a colored midwife. The proportion of native white mothers attended by a physician at confinement was the highest that had been found in any rural district studied by the Children's Bureau except the one surveyed in Kansas. However, it was lower than any of the cities studied by the bureau. A physician had been in attendance at every confinement for about two-thirds of the white mothers, but for only 3 per cent of the Negro mothers. Moreover, 11 of the 13 Negro mothers had had but one confinement. The custom among the Negroes seemed to be to call a physician only when some complication arose which the midwife could not handle. There were, however, 23 white mothers who had never had a doctor at confinement, and 14 of these had had three or more pregnancies. Of the total confinements to all mothers (3,017), 64 per cent were attended by midwifes or other women and 35 per cent by physicians. Of the remaining 1 per cent of the confinements reported, 16 were attended by the father and for 11 there was no attendant.

The difference in the choice of attendant might have been due partly to the difference in economic well-being between the white and colored families. On the whole, the Negro families were much poorer than the white, and since the midwife's fee was so much lower than a physician's the choice of attendant was in many cases conditioned by the family's ability to pay. The percentage of mothers, both white and colored, who were attended by a physician

at confinement was much higher among those families living on farms of their own than among farm tenants, and was lowest among the half-share tenants.

Distance from attendant.—Another factor that entered into the choice of attendant at confinement was the distance the physician had to travel to reach the patient. Sixty-six white families were living 7 miles or more from a doctor, and on the other hand 155 white families, more than half, were less than 5 miles from a doctor. For white families the proportion of mothers attended by physicians was lower for those living 7 miles or more from a doctor than for those living nearer, and the proportion of cases attended by midwives was higher. In this connection, however, transportation facilities and the condition of the roads must be taken into account. All mothers, both white and colored, who lived in the more remote parts of the county ran greater risks at confinement than those in or near towns, because of the time and difficulty usually involved in getting a physician in an emergency, but under favorable conditions it was usually possible even for families living far from town to get a physician in time. There were, however, instances of unfortunate combinations of circumstances which prevented the mother from securing a physician for confinement. One mother told of difficulty at confinement because the first physician they called was ill and the next one was away on another case, so that she was alone with her husband and a neighbor when the baby was born. Another mother told of failure to get a physician because a man had taken down some of the telephone wire to repair his wagon. Still another had a baby born in January when a severe storm was raging. The telephone was out of order and her husband had to go through the storm to use a neighbor's telephone. He succeeded in reaching the doctor, but the latter was delayed by having to heat water in order to start his car, and when he finally reached his patient the baby had been born two hours. By that time the grandmother had cut the cord and rendered the other necessary services.

There were many midwives scattered through the different sections of the county and probably no family lived more than 2 or 3 miles from one.

CARE OF THE MOTHER AFTER DELIVERY.

Medical care.—Only one-third of the 266 mothers who were attended by a physician at confinement reported any after care by a physician; 46 received but one visit, 25 received three or more, and only five reported more than six visits. Of the 25 confinements for which the physician made three or more visits, 14 were cases in which either the mother or the baby was in a serious condition after delivery.

In 6 of the 11 remaining cases the family was living less than a mile from the attending physician, and in 3 other cases the mothers were the wives of prosperous farmers.

Nursing care.—One of the most serious obstacles to good maternity care was the scarcity of nursing care. There was no trained nurse working regularly in the area, and most of the practical nurses were midwives whose practice was largely among Negro mothers. Very few of them were really competent. Only 7 mothers of the 675 secured trained nurses, and less than one-fourth reported care by a practical nurse or midwife. It was also very hard to find anyone who could be hired to do the housework during the mother's lying-in period, and in the majority of cases the person who nursed the mother had most of the responsibility for the housework, too. This scarcity of help many times resulted in poor care for the mother and made her feel that she ought to get up at the first possible moment. One mother who had stayed in bed only a week explained that it was her custom to stay longer but that this time she could get no nurse; she was worried because the baby was not doing as well as he should, and she felt that she must get up to attend to him. Another said she had been unable to get either a trained or a practical nurse, even though all her children had whooping cough when she was confined. She finally secured a colored woman to care for her and do the housework. In another family the father nursed the mother while the older daughters, girls of 12 and 16, did all the housework and washing. One woman told of a miscarriage brought on by overwork in nursing her husband and her father at a time when no woman could be found to help with either the nursing or the housework.

Less than one-fourth of the midwives interviewed reported that they stayed in the mother's home a day or more after delivery; most of them stayed only a few hours. The majority of midwives went to see the mother afterwards from one to five times, but most of the care given during the lying-in period was for the baby rather than for the mother.

In about 1 case in 7 most of the nursing was done by the father. In about 1 case in 5 the nurse did not stay with the mother constantly, but came in for a few hours during the day. This practice was most common among the midwives, but there were other cases in which the mother depended upon daily visits from some neighbor for nursing care. In most cases such care was gratuitous—a neighborly service to be repaid only in kind. One mother said that her mother came in several times a day, but that it was a busy time on the farm and she was left alone much of the day with only the children to wait on her. Another said she secured a colored woman

to come and stay with her, and one of the neighbors to come in for an hour or so every day to bathe her and the baby.

In 72 cases the nurse left before the mother was able to be up, and in only 17 cases did the nurse stay until after the mother was able to be up for most of the day. In nearly two-fifths of all cases no extra person was called in, but the mother was cared for by some member of the household. Only about 21 per cent of the mothers had paid nursing care, and only 13 per cent paid for all nursing care received.

The quality of nursing care was on the whole much poorer for Negro mothers than for white. None had a trained nurse. Less than one-third had nursing care by a midwife or practical nurse, and one-third of these mothers had practical nurses who made only a few visits and did not stay in the mother's home. The percentage of mothers nursed only by their husbands was larger among Negro than among white families. Four had only such care as could be given by a child under 14 years of age—in one instance a little girl 5 years old. Two Negro mothers had no nursing care at all. Needless to say, these mothers got up as soon as possible after confinement.

Days in bed.—As a result of the scarcity of nurses, the pressure of work, and the inadequate supervision by physicians and midwives, many mothers did not have the rest in bed after delivery that is considered essential. Of the white mothers visited, there were 20, or 7 per cent, who stayed in bed less than a week, and nearly 60 per cent who stayed in bed 10 days or more. Of the Negro mothers, 150, or 39 per cent, stayed in bed less than a week, and 30 per cent 10 days or more. One Negro mother explained rather apologetically that she had stayed in bed for a week after the last baby was born, because the weather was so cold. Ordinarily she stayed only three days. In spite of the custom among many of the Negro mothers of staying in bed only a few days, some still held to the tradition that the mother should "stay in her month." One said that she had been told by the midwife who attended her first confinement to stay in bed for a month, and she had followed this advice at each of her four subsequent confinements.

The season of the year in which the confinement occurred determined to some extent the length of time which the mother spent in bed. One Negro mother explained that she stayed in bed for only four days with a "summer-time baby," but with one born at any other time of the year she stayed in bed longer. During the busy spring and fall seasons the mother was likely to feel that she ought to help if she possibly could, and even if she did not go into the fields for work herself she might try to release for field work those who were helping with the nursing and housework.

COSTS OF CONFINEMENT.

The costs of confinement tabulated for this study include the attendant's fee, the cost of prenatal care, the cost of hospital care, and the combined cost of nursing care and help with the housework; expenses for medicine and for extra supplies or transportation are not included.

Total costs and free service.—Of the white mothers who reported the cost of confinement, 62 per cent gave totals ranging from $10 to $25, and 16 per cent reported an expense of $25 or over. Of the colored mothers who gave information on this point, 65 per cent reported a total cost of less than $5 and 25 per cent a cost of less than $2.50. These costs average lower than those found in any other rural district surveyed. In Kansas 54 per cent reported an expense of $25 or over for confinement, while in Montana physicians' fees alone were usually over $25 for confinement, prenatal care, and postnatal care. Forty-six mothers, 16 white and 30 colored, reported no money whatever paid out for the services specified. Analysis of cost by different items of expense shows that most mothers received free service of some kind. Forty received free care from the attendant midwife, and 4 paid nothing to the attendant physician. In 488 cases (three-fourths of the total reporting) there was nothing paid out for either nursing or housework. In such cases by far the largest item of expense was that for the attendant at confinement. Other costs rarely equaled or exceeded the attendant's fee, and in a great many instances it was the only expense incurred.

Costs itemized.—It was customary for the physician to charge a fee for confinement and, in addition, regular fees for each prenatal or postnatal visit, rather than a lump sum to cover all care during pregnancy and confinement. The physician's usual fee for a normal delivery was $10 or $15. Of those who reported the physician's charge for confinement alone, 193 (87 per cent) paid from $10 to $25, and only 16 paid over $25. The expense averaged higher if prenatal care had been given. Five of the nine mothers who received fair prenatal care (see p. 24) paid a physician $25 or more. About 1 in 7 of the mothers reporting inadequate care paid over $25. For the confinement fee alone only about 1 mother in 14 of those who reported paid $25 or over. None of the mothers who paid the attendant physician less than $10 received any postnatal care; approximately 28 per cent of those who paid $10 to $25 received postnatal care; and 10 of the 16 mothers who paid over $25 received postnatal care. The distance which the physician had to travel seemed to be a factor of no importance in the expense. Distances

were small compared to those found in Montana,[3] where the physician's fee for mileage was sometimes greater than his fee for service. No instance was discovered in this study of a physician's making a charge for transportation or mileage.

Approximately two-thirds of those reporting payment to a midwife paid her less than $5 and in only 3 instances was the charge over $10. It is natural, therefore, that the poorer and the more ignorant families should employ the midwife rather than the physician whose fees were higher. One Negro mother stated frankly that she had tried both and preferred the midwife because she did more and charged less. The midwife's fees varied somewhat according to the difficulty of the case, the distance from the patient, and the ability of the family to pay. One midwife said she charged more for boys than for girls because "boys are harder to handle and mothers want them more."

In many cases there were informal arrangements such as exchange of services, and payments in chickens, pigs, grain, and other produce instead of money payments. One mother said she gave the midwife a bottle of snuff (valued at 25 cents) for confinement care, including nursing and help with the housework. About one-half of the white mothers and almost 95 per cent of the colored who reported on costs of confinement said that they went to no expense for nursing and housework; some of these may be included in the 71 who paid the midwife a lump sum for confinement and nursing, or in the 34 who paid her a lump sum for confinement, nursing, and housework. Many families settled the debt on a neighborly give-and-take basis which involved no money payment. One father worked his sister's crops a few days to pay her for helping his wife at confinement; another gave his wife's sister a bottle of snuff in return for her services. Negro help was often paid in left-overs from the table, milk, or second-hand clothing. Rates per week for nursing and housework varied from 50 cents to $5 or (in a few cases) more. The usual prices were $1.50, $2, or $2.50 a week. Nearly one-half the 136 white mothers who stated a definite charge for nursing and housework reported less than $5, 26 reported costs of $10 to $25, and six reported costs of over $25 for these services. Of the 20 colored mothers who paid for nursing and housework, 9 paid less than $2.50 and only 5 paid $5 or more.

Cost of confinement and economic status of family.—The percentage of white families who reported a total confinement cost of $25 or more was higher among farm owners than among farm tenants, and higher among owners of the 100 to 500 acre plantations than among the farm owners as a whole. More than one-third of the white half-

[3] U. S. Children's Bureau Publication No. 34, Maternity Care and the Welfare of Young Children in a Homesteading County in Montana, pp. 49, 50.

share tenants reported charges of less than $10, while about one-fifth of all white families reported charges of less than $10. The percentage of those receiving free care was much higher among half-share tenants than among any other economic group. In general the mothers of the well-to-do white families got better care than the mothers in the poorer families because they were better able to pay for it. The doctor's bill was a big item to the poorer tenant, and in many cases ignorance and poverty combined to make him feel that a physician's services during pregnancy and at confinement were an unjustifiable expense to be incurred only in cases of unusual emergency.

One Negro mother had been miserable throughout her pregnancy; she could scarcely walk, her feet were swollen, and she had to kneel in order to hoe. She seemed pitifully eager for relief, but said she could not afford to have a physician. "If I had a doctor, then when winter came there would be nothing for clothes. Poor families can't have such things as doctors." This mother had been hurt by a falling tree two months before the interview, but was still doing her house and field work, although unable to walk without the help of two homemade crutches.

Share tenants usually depended upon the landlord to advance credit for the doctor's bill and to deduct it, with interest, from the crops sold at harvest time.

MATERNAL MORTALITY.

Maternal deaths in the county.—Three mothers of the 675 for whom information was secured for this study lost their lives in childbirth, two from puerperal septicemia and one from hemorrhage following confinement. The care received by the three mothers who died was, on the whole, no better and no worse than that received by most of the mothers visited whose confinements did not terminate fatally. None of the three mothers had received any prenatal care. All did their washing, housework, and other chores up to the time of confinement and none had trained or even partly trained nursing care. Only one was attended by a physician at confinement, and in this case the mother died of hemorrhage which began after the attending physician, the only doctor within a radius of 8 or 9 miles, had hurried away on another call. One of the other mothers was attended by a neighbor because the physician who was sent for had to come 5 miles over rough roads and was an hour late; she died of puerperal septicemia about four weeks later. The other case was that of a Negro mother whose baby was born while the father was on his way for the midwife. She did not arrive until two hours later, when she found the mother and baby shivering on the floor. The mother died a few days later.

By the death of these three mothers 13 children were left motherless. Eleven were white and 2 were colored, and 10 of them were under 7 years of age.

Deaths from causes other than childbirth.—Eleven mothers who had been confined during the period covered by the survey died from causes other than childbirth before the date of the inquiry, 10 of them within eight months after confinement. In nine of these cases pregnancy and childbirth may be considered a contributing factor in hastening death. Five died from tuberculosis, all of them colored women. One mother, also colored, died of pellagra, the mortality from which is relatively high among women of childbearing age.[4] The death of one white mother four days after the delivery of a stillborn child was ascribed to pernicious malaria. Two mothers, one white and one colored, died from nephritis, one about two months after the baby was born, the other about four months after. Two of these mothers had prenatal care of "inadequate" grade (see p. 24); the others had none at all. Four were attended at confinement by physicians, 5 by midwives. The deaths of these women left 40 children motherless.

Of the last babies of these mothers, 1 was stillborn, and 4 of the 8 live-born babies died under 4 months of age. One died of an intestinal disturbance two weeks after the mother's death. Another died while his mother was on a journey to see a doctor 30 miles away. One baby whose mother was too ill to nurse him "just got peakeder and peakeder and finally was nothing but skin and bone." The fourth death was that of a tuberculous mother who had been unable to nurse the baby.

[4] Report of the Board of Health of Mississippi, 1915–1917, p. 344, Jackson, Miss., 1918.

MOTHERS' WORK IN RELATION TO CHILDBEARING.

USUAL FARM AND HOUSEHOLD WORK.

Farm work.—Most of the mothers had been reared in the country and were used to doing farm chores and field work as well as housework. Women reported doing almost every kind of field work which was to be done—plowing, harrowing, hoeing, chopping, and cotton picking. About 85 per cent of the white mothers reported that their principal occupation before marriage had been farm work of some kind, and about 70 per cent had done field work; 8 per cent had been teachers, and a few had been employed in stores, cotton mills, or offices. Nearly all the colored mothers had done field work before marriage; a few had worked as domestic servants. About five-eighths of the mothers did field work during the period covered by the survey, and practically all of these had done farm work of some kind before marriage. Somewhat more than one-fourth of the mothers who, as girls, had worked in the fields were relieved of field work during the period studied, this being due in some instances to poor health, in others to pressure of household work, or to higher income which made it unnecessary for the mother to work in the fields. One father said he had taken work as a farm laborer rather than as a tenant so that his wife would not have to work in the fields.

The importance of the different kinds of chores as indicated by the number of mothers reporting them was as follows: (1) Care of chickens, (2) care of garden, (3) carrying water, (4) churning, (5) milking, (6) care of stock, and (7) running the cream separator. Only one-tenth of those who reported doing chores were doing less than three of those listed above, and more than one-half were doing five or more. On the whole, the Negro mothers had fewer chores to do than the white mothers, probably because a smaller proportion of the Negro families kept cows, pigs, or chickens. It was customary in most families for the women to take care of the chickens, and for the men to attend to feeding the cattle and work animals. Most of the mothers who reported care of stock took care of the pigs only.

About 79 per cent of the white mothers carried water for household use; for nearly one-half of these women the source of water supply was less than 25 feet from the house, but for more than one-fourth it was 300 feet or more from the house. About 54 per cent had a pulley or windlass to draw up the water bucket; about 40 per

cent had to dip water from the spring or pull it up from the well by hand; only 6 of the 222, the total number reporting, had a pump. Eighty-five per cent of the Negro mothers reported carrying water as a regular chore. The distance averaged a little higher than those reported by the white mothers, as more than two-thirds carried water 25 feet or more, for two-fifths the source of water supply was 300 feet or more from the house, and about 1 in 8 had to carry water a quarter of a mile. The proportion (49 per cent) of mothers reporting no equipment for drawing water was higher among the Negroes.

Household conveniences [1] and household help.—Housekeeping in most homes was rather primitive. Some of the houses were very barely furnished, with two or three splint-bottomed chairs, a bed, a bench, and a rough-board table. Some mothers did most of the cooking at an open fireplace. Of the white mothers, only 15 per cent had more than two household conveniences, and 20 per cent had none at all; of the colored mothers, none had more than two, and 56 per cent had none at all. The abundance of cheap colored labor had induced many white families to hire cheap hand labor rather than to purchase labor-saving devices.

Sewing machines were the only modern convenience in general use, yet only 75 per cent of the white mothers and 42 per cent of the colored mothers had them. Eight white mothers had water in the house, and 2 of these had a bath and sink also; 14 mothers had washing machines and 13 had refrigerators. Many said that they kept food cool by letting it down in the well, putting it in the spring, or in a tub of cold water. Kerosene lamps were used for lighting in all the homes visited. Eighty-six families had telephones and 14 had automobiles. In only 77 homes were there screens at all the doors and windows. While screening is primarily a health precaution, it also saved the mother much annoyance from chickens, pigs, dogs, and cats, which otherwise came in at will. It was not unusual for the agent's interview with the mother to be interrupted while the pig was pushed out of the door or the chickens "shooed" away from the table.

Forty-three per cent of all mothers reported that they had some help with the housework all the year round (as distinguished from help during pregnancy and confinement). Three-fourths of these mothers received help from some other member of the household—a mother, sister, or grown daughter, who was living with the family.

[1] Conveniences tabulated were as follows: Water in house, bath, sink, washing machine, sewing machine, refrigerator or ice box, iceless refrigerator, fireless cooker, bread mixer, vacuum cleaner, oil stove, furnace, gas or electric lights, engine for household use, telephone, screens for all doors and windows, and automobile. While an automobile is not strictly a household convenience, it was so classed because it made it so much easier for the mother to get to market, to see her neighbors, and to reach help in time of trouble.

Such arrangements were seldom made on a money basis, and were usually independent of the economic status of the family. Of the 123 white mothers who usually had help with the housework, nearly half had hired help. While the proportion of Negro mothers who usually had some help with the housework was slightly higher than among white mothers, none of them hired such help.

For many families the only housework for which outside help was hired was laundry work. About 88 per cent of all mothers reported that they did their own washing. The washing was usually done out of doors near the well or spring; the water was heated in a large iron kettle over the outdoor fire and the clothes were boiled over this fire.

Under the system of tenant labor on the large plantations the planter's wife was not responsible for boarding or housing the field hands. The tenant farmers and most of the farm laborers lived in houses by themselves and boarded themselves. Hired men who lived with their employer's family on a basis of social equality were practically unknown, since the great bulk of hired labor was Negro. Even the domestic servants usually lived in separate houses with their own families.

WORK DURING PREGNANCY AND AFTER CONFINEMENT.

The health of the mother and baby may be impaired by excessive work during pregnancy or too soon after confinement. Ordinary housework and the lighter farm chores are a very good form of exercise if they are not carried to the point of fatigue, do not involve heavy lifting or straining, and are not resumed too soon after delivery. It is important, therefore, to know what period of rest the mother had before delivery and how soon after confinement she had to resume full responsibility of her usual work. The time which these mothers actually spent in bed has already been discussed (see p. 30).

Mothers who could not afford to hire help and were unable to make other arrangements could not secure the desirable period of rest before and after the baby's birth. Pressure of work in the busy cotton-picking season, when all hands are in the fields, often made it hard for the mother to get help.

Emergencies similar to the following were not unknown: A mother confined in January said that during the latter part of her pregnancy her husband was taken ill, and the family was obliged to move to make room for other tenants. The mother had to assume the whole burden of moving and settling in the new home. She cut enough wood to last throughout the period of her confinement, and when labor pains began she was building a hogpen.

A few of the white mothers left home for confinement, in most cases to stay with relatives, where facilities for maternity care differed little from those in their own homes, but where they could secure a more complete relief from responsibility for the housework during the period of confinement.

Kind of household help secured.—Many of the mothers reported that it was difficult to get reliable persons to help with the housework while they were incapacitated. Only 28 per cent of the white mothers and 5 per cent of the colored reported hired help for housework. Over 35 per cent of all mothers reported free help given by an outsider. Neighbors were usually ready to come in to help when they were needed. One mother said that she and her sister who lived near had agreed that when either was pregnant the other would do the washing for both families. While there were no mothers who reported no help at all with the housework, five of the white and nine of the colored mothers said that the only help they had was from a child less than 14 years old. Such help relieved the mother of the actual work, but it did not relieve her of the responsibility. In 9 per cent of the white families and 14 per cent of the Negro families, the housework was done by the husband or son; 21 per cent of the white mothers and 41 per cent of the Negro mothers reported help given by some other adult member of the household.

Relief from work before confinement.—Of the white mothers less than one-fifth reported any relief from housework before confinement and less than one-tenth reported a relief of one month or more; about 96 per cent did some farm chores during pregnancy and 80 per cent reported no cessation before delivery. If the mother's work was lightened at all during the latter part of pregnancy it was likely to be done by relief from washing or field work. About 76 per cent of the white mothers did the washing during pregnancy, and 29 per cent of these stopped one month or more before the baby was born. Eighty-four white mothers, less than 30 per cent, reported field work during pregnancy; 39 of these had a rest of three months or more before confinement; 4 had from a week's to a month's rest; and 18 worked in the field up to the day of confinement.

Cessation of work before delivery was even less common among the Negro mothers. Approximately 93 per cent reported that they did their usual housework up to the time labor began; 89 per cent had no relief from farm chores; 79 per cent had none from washing, and nearly 40 per cent did field work up to the time of confinement. One of the Negro mothers who was confined in the cotton-picking season said she worked in a field 2 miles from home during the last day of her pregnancy; she "just did make it home" that night, but was unable to get supper for the family. Of the 320 Negro mothers who

did field work during pregnancy, only 70 stopped one to three months before confinement, and only 79 three months or more.

Approximately 75 per cent of the white and 94 per cent of the colored mothers did housework, washing, and chores during pregnancy, and of these 62 per cent of the white and 79 per cent of the colored reported no cessation of any of the three kinds of work before confinement. Twenty-nine per cent of the white and 81 per cent of the colored mothers did field work in addition to their housework, washing, and chores, and of these mothers 20 per cent of the white and 42 per cent of the colored reported no cessation before confinement. The one mother who had no one to attend her at delivery hoed corn the whole day before confinement. She came home a little early and the baby was born. Her husband was still in the field and she could not get word to him.

Approximately 75 per cent of the white mothers reported cessation of some kind of work (housework, washing, chores, or field work) a month or more before confinement, and nearly 50 per cent a cessation of three months or more. Among Negro mothers nearly 50 per cent reported relief from at least one kind of work a month or more before confinement, and 27 per cent a relief of three months or more.

Resumption of work after confinement.—Among white mothers, 83 per cent reported that they resumed their usual housework less than six weeks after confinement: 19 per cent resumed it less than two weeks after. Only about 1 in 7 had a relief from housework of six weeks or more after confinement. One mother said that although she always had a hard time at confinement, she had to be up and doing all her housework within a week afterwards. Another mother who had a difficult delivery had been obliged to get up to look after the other children when the baby was 1 week old. The weather was very cold, but the family had to move when the baby was 3 weeks old because someone else was taking possession. About 75 per cent of the white mothers began to do chores less than six weeks after confinement, and nearly one-half of these began at less than four weeks. Nearly 40 per cent began to do their washing within the first six weeks; about 32 per cent of the 145 white mothers confined in the first year of the period did not do their washing in the year after the baby was born. Only seven of the white mothers worked in the field during the first six weeks after confinement. Slightly over one-fifth did field work in the year after confinement.

The proportion of mothers who resumed housework and chores in the first six weeks after confinement was approximately the same for white and Negro. Sixty-two per cent of the colored mothers began to do their washing less than six weeks after confinement, and

14 per cent began less than four weeks after. Twenty-two per cent did field work in the first six weeks after confinement. Following the tradition expressed by one mother who said, "I stayed out of the field my month," all but six did no field work during the first four weeks after confinement.

The mothers who had no rest from work before confinement were also the ones who had to begin work soon after confinement. About 75 per cent of the white and 80 per cent of the Negro mothers reported not only no relief from housework before confinement, but also resumption at less than six weeks after. Thirty-six per cent of the white mothers resumed their housework, washing, and chores less than six weeks after the baby was born, and 2 per cent had also resumed field work. Fifty-seven per cent of the Negro mothers had resumed housework, washing, and chores less than six weeks after confinement; slightly over 10 per cent resumed it at less than four weeks. In addition, field work had been resumed by 18 per cent of the Negro mothers at less than six weeks after the baby's birth.

Many mothers gave accounts of the ill effects of heavy work. One said she thought her baby had been born prematurely because of the heavy work she had been doing in the field in addition to her housework, washing, and chores. She stayed in bed 10 days after the baby was born, and in three weeks began to work in the field again. She endured the strain for a week, then had to give up, and was incapacitated for a month.

Effect of farming season on mothers' work.—In agricultural communities the work in the house is intimately correlated with the work in the fields, and pressure of work in the busy farming season is likely to mean additional work for the mother. Even if she does not go into the fields to work herself, her husband and older children have less time in which to help with the chores and housework. One mother who was confined in the winter said that although she was up in six days, she stayed in the warmest room most of the time for the next two weeks, while her husband did the housework. Another said that although she was feeling well, her husband did the work for three weeks after the baby was born, because he had no work to do in the fields at the time.

The climate was such that for only about two and one-half months in the year was it impossible to work in the fields. The busiest seasons were in May and June (hoeing time for cotton and corn), and in October and November (picking time in the cotton fields). Each season was likely to spread over two weeks before and after, and it varied with the weather and the size of the crop. Accordingly, the slack season may be considered as extending from the middle of

June to the middle of September, and from the middle of December to the middle of April.

In the case of white families the extent to which the mother might be relieved of overstrain during pregnancy and the weeks following confinement usually depended on the financial ability of the family to hire help, though in some instances economic conditions made no difference one way or the other: because the mother had relatives who came to help her; or because she was wholly incapacitated and had to be relieved whether she could afford it or not: or because at the time no help could be secured. Very few Negro families could afford to pay money to relieve the mother of her usual duties during pregnancy and after confinement.

CARE OF CHILDREN.

The connection is more or less obvious between the various subjects of the study taken up thus far—maternity care, work of the mother, housing and sanitation, and economic conditions—and the question of the welfare of the child. The lack of specialists and hospital facilities was as serious for the babies as for the mothers, and poorly built, insanitary houses made living conditions dangerous for the one as well as for the other. In this section of the report infant deaths and those elements of child care not already touched upon—feeding customs, care of sick children, home remedies used for children, etc.—will be considered.

BIRTH REGISTRATION.

Complete birth registration is a prerequisite to any adequate study of infant mortality and child welfare. Since 1912, when the State passed a law establishing a bureau of vital statistics under the State board of health, and providing for the registration of births and deaths, the board of health had been working toward complete registration, but at the time of this survey no part of the State had been admitted to the birth-registration area, and only the five largest cities to the death registration area. Only 50 per cent of the births included in this study were registered. One of the greatest obstacles to good birth registration in the county was the difficulty of getting the midwives to register births. Many of the colored midwives were illiterate, and therefore had to get some one else to fill out the certificate or report by word of mouth when they happened to go to town. Often the names were written on old crumpled slips of paper and were almost illegible. While the midwives were responsible for the greater part of the unregistered births, only 76 per cent of the births attended by physicians were registered. Only 71 per cent of the infant deaths were registered.

INSTRUCTION IN INFANT CARE.

A general lack of knowledge of child care prevailed among the mothers visited, as very few of them had received any instruction in this matter beyond what they learned from their mothers or from their own experience. Only 20 had received some instruction from a physician and 2 had been advised by a trained nurse. Fifty-eight had learned something of infant care through reading, but the high percentage of illiteracy and low standards of education prevailing in the county made instruction through reading practically unattainable for a large proportion of mothers in poor white as well as in Negro families. The literature read, however, was not really instructive in all cases, for while 2 had read books by Holt, 1 a bulletin from the Department of Agriculture, and 25 current magazines and papers, the rest had read only advertising pamphlets or almanacs or "doctor books" of one kind or another. Many mothers were very glad to receive the Children's Bureau pamphlet on Infant Care.

The methods of caring for children were in accordance with the customs handed down by other generations. The midwife's advice was often sought, especially in regard to the care of the baby during the first few days of life, and the midwives were credited with being responsible for encouraging dangerous methods of feeding and the use of filthy and dangerous home remedies.

FEEDING CUSTOMS.

The almost universal custom of breast feeding among the country mothers in the county studied probably counteracted in many instances methods of feeding unwise in other respects. The tendency of the mothers was to nurse their babies not only through the first year, but also through most of the second year or even longer. Artificial feeding was haphazard and unscientific. In many cases it included the whole range of family diet—meat, corn bread, pie, etc. Some mothers did not use cow's milk because the "bitter weed" that the cows ate made the milk bitter in taste, although not, so far as could be learned, unwholesome.

Breast feeding.—The often-repeated criticism of the feeding customs of rural mothers that they feed their babies from the table at too early an age and delay weaning too long held true in the case of the mothers included in this study. Only 14 per cent of all infants, both white and colored, for whom information was secured, were weaned before the middle of the twelfth month; two-thirds were nursed through the greater part of the fifteenth month; nearly one-half through the eighteenth month; and one-fourth through the greater part of the twenty-first month. Nine infants were nursed through the greater part of the twenty-fourth month or longer.

One instance was found at one of the children's health conferences of a child six years old who was still nursing.

The Negro mothers showed a tendency to wean their babies a little earlier than the white mothers; by the middle of the eighteenth month 63 per cent of the Negro babies had been weaned as compared with only 41 per cent of the white babies. Of the babies receiving exclusive breast feeding, the percentage was higher in each month of age for white than for colored babies; for babies receiving some breast feeding, at the sixth month the percentage was slightly higher for Negro than for white; and at 9 months the percentage (92) was about the same for both races.

Solid food and family diet.—Artificial feeding may be necessary in some cases at an early age, and, while not so good for the baby as breast feeding, does not necessarily obviate the possibility of normal development. Experts generally agree that fresh, clean, modified cow's milk is the best substitute for mother's milk, and that no solid food should be given during the first six months at least. Only one-fourth of the babies studied were receiving a strictly liquid diet at 2 months. The solid food included bread or crackers soaked in milk, gravy, or cereals, and did not necessarily include the kind of food eaten by the older members of the family. However, many mothers reported that the baby at an early age was given "tastes" of everything that the mother ate. One mother said with pride that her baby had eaten "everything" since she was 11 days old and had had all the meat she wanted since 2 months old. Another said there was nothing too hot with pepper or too sour for her 14-months-old baby to eat. Eight per cent of the mothers reported that the baby had been given family diet when less than 1 month old, 15 per cent at 2 months, and over half at 7 months. Only about 6 per cent were reported as 12 months or more of age before receiving family diet.

The tendency to give the baby solid food or family diet was more pronounced among colored mothers than among white. At the fourth month 60 per cent of the colored babies were receiving solid food as compared with slightly under 35 per cent of the white babies. Under the eighth month the percentage of colored babies receiving family diet was higher than that of white babies receiving solid food. At the end of the twelfth month nearly 80 per cent of the colored babies were receiving family diet as compared with about 60 per cent of the white babies.

CHILDREN'S ILLNESSES.

Medical care.—The accounts given by the mothers of their children's illnesses indicated the difficulties in caring for sick children in these rural districts. Children's specialists and hospitals were

too far away and too expensive to be thought of by any but the most prosperous parents, and many of the poorer families living in remote parts of the county hesitated to call a doctor unless the child seemed very seriously ill. As one mother said: "A farmer only gets money twice a year, and if the children get sick between seasons they have to get along."

One mother said that her baby began to have indigestion at two months; he vomited frequently and had spasms. These symptoms continued for over three months, but the doctor was called only once. Another mother said that her baby had been ill for three weeks with some trouble in the head; she bathed the baby's head with camphor and put sweet oil in her ears but did not call a physician.

Only the two county seats had more than one physician, and families out of reach of one or the other of these towns often had to send 15 or 20 miles for the nearest physician available. Although under ordinary circumstances a doctor could be secured in two or three hours at most, there were, of course, times when this was not possible, and sometimes serious complications developed so rapidly in babies and young children that even a short delay proved serious or even fatal. The baby of a family living 4 miles from the doctor in a house back in the woods, almost inaccessible from the main road, became sick when 6 days old. The father consulted the physician by telephone, and medicine was sent, but the baby died the following day.

Nursing care.—Trained nurses were no more available for sick children than they were for mothers at confinement, and, as in other rural areas, home care was the rule when children were ill. Emergencies frequently arose when there was really acute need for trained, or even practical, nurses. One mother said that when the baby was born both the father and the other children had measles. It was an unusually severe winter. No nurse could be found nor could they get domestic help. A neighbor came in once a day for a little while, but she was too busy with her own family cares to do much. The oldest child died about a week after the baby's birth. In another case, all the members of a family were ill at the time of the mother's confinement. The father, though convalescent, was not able to do much, and as a last resort his brother came in and did the housework. In another family the mother and four children were ill with malaria. The father had to do the nursing and housework himself while he hired cotton pickers to take his place in the fields, field laborers being much easier to find than nurses and housekeepers.

Situations similar to these described were likely to be brought about whenever the mother was incapacitated. Many mothers had no one who could take their place as nurse, because relatives and

neighbors were entirely occupied with their own family affairs, and furthermore many of the women, although willing to do their utmost, lacked skill and experience in the proper care of children seriously ill.

Deformities.—Several children needed special attention on account of some deformity. One white baby had deformed feet. The father had given up his farm and secured work with the railroad in order that he might earn money and perhaps secure a railroad pass to take the child to a specialist and have the deformity corrected. A mother was most anxious to know what ought to be done for her year-old baby who had a deformed hand and wrist. She brought the child to one of the children's health conferences, and the Government physician said that some manipulation and massage would do a great deal of good, but unfortunately there was no one in the county who could do it. One baby had club feet and his father, a Negro farm hand earning $19.50 a month, had never taken him to a physician. Another Negro boy about 6 years old had a stiff knee and back so that he could not stand upright and could scarcely walk. His mother said that his condition was caused by paralysis from which he suffered while teething. The family owned a small farm on the river bottom, but had never considered it possible to take the boy to Memphis or Jackson. In several other cases similar to these the need for special medical attention seemed imperative if the children were to have a fair chance in life. A public health nurse could do much toward teaching parents that it is possible to have deformities corrected and toward making the necessary arrangements with specialists and hospitals.

Accidents.—Children everywhere are liable to injury from accidents of one kind or another. But in Mississippi accidents occurring while the parents are absent in the fields are far too common. The secretary of the board of health, in commenting on the large number of deaths from burning, said: "This carelessness which resulted in the death and suffering of so many children for the last two years * * * should be given thorough study and means provided, if possible, to reduce this unnecessary mortality."[2] As the open fireplace was used for cooking in many of the cabins, the danger from fire was serious at all times of the year. It was not uncommon to find a little baby left alone in its crib while its mother was off in the fields at work. One colored mother told of the death of her oldest son from burns. She had no one to leave him with while she went out in the field to plant potatoes. Presently she heard him scream, and rushed back to find his clothing all afire. In one family visited, the baby had no toes on the right foot. The mother ex-

[2] Report of the Board of Health of Mississippi, 1915–1917, p. 107. Jackson, Miss., 1918.

plained that she had left the baby on the floor while she went out for a little while, and that when she came back she found that the baby, then 6 months old, had crawled to the fireplace and one little foot was in the coals.

The custom of leaving infants in the care of older children too young to accompany their mothers to the field is bound to lead to serious results. During the hoeing season the Children's Bureau agents often found no one at home but a little 6 or 7 year old child in charge of one or two younger children. Sometimes he could point in the direction in which his mother had gone, sometimes he did not seem to know where she was. One mother left the baby with the older children while she went to work. The baby's dress caught fire and he was badly burned. Accidents of other kinds occurred while older brothers or sisters were tending the baby. One baby had been sick since the older children in their play let him fall out of bed while the mother was working in the field. Another mother said her baby had been very sick when 12 months old. She thought "the children might a' dropped the baby" while she was in the field. Such accidents as these described were more common among Negro babies because the Negro mothers did more field work than the white mothers. Some mothers tried to solve the problem by taking the babies with them to the field, but with no shelter from the hot sun this arrangement did not seem very satisfactory.

Illnesses.—The accounts of children's diseases given by the mothers did not differ very much from those given by mothers in other parts of the country. Colds, indigestion, and colic were mentioned frequently. In the winter previous to the survey there had been mild epidemics of measles and whooping cough with no effective quarantine regulations. The children were, of course, liable to the diseases peculiar to the South—malaria, hookworm, and pellagra. One physician said he had noticed a decided tendency among mothers to attribute almost any illness which children had to "worms" and to persist in the belief contrary to the doctor's diagnosis. Several mothers said that their children had had worms and that they had used various home remedies, turpentine, soot tea, castor oil, etc.

Home remedies for children.—The great extent to which the mothers in the area "doctored" their children presented one of the most serious phases of child care. Home remedies have a legitimate place in every household, but stories told by many of the mothers indicated a widespread tendency toward overdosing and unwise selection of drugs for the home medicine chest. Patent medicines were in common use, particularly among white mothers. The colored mothers made frequent use of teas of one kind or another. More or less superstition was evident in the remedies recommended by colored mothers. The midwife instead of the doctor was frequently

summoned in case of illness, and she was often responsible for the extravagant use of home remedies.

INFANT DEATHS.[3]

In any locality where the birth and death registration is as incomplete as in the rural areas surveyed by the Children's Bureau, it is impossible to discover all births during a given period even by a house-to-house canvass. The number of omissions is probably proportionately greater for stillborn infants and babies who died early in the period included in the canvass than for the others. The returns are especially likely to be incomplete in districts similar to the county studied in Mississippi where many families live on farms remote from the traveled roads, and a large part of the population is shifting and illiterate. As a consequence, infant mortality rates for the area studied, while as accurate as any that could be secured, are somewhat lower than they would be if returns for deaths had been as complete as for births. On the other hand, figures based not on a canvass but on birth and death registration alone are likely to exaggerate death rates since death registration is usually more complete than birth registration.

Of 155 white children born alive to the mothers interviewed, 12 died in the first year of life. This number includes only children born between April 1, 1916, and March 31, 1917, the first year of the period covered by the study, since most of the children born later than that were less than 1 year old at the time the information was secured. The infant mortality rate for these white children was 77.4,[4] a rate lower than was discovered in any of the cities surveyed, but high as compared with rates for other rural districts studied. The rate found in Kansas was 40 to 1,000 live births;[5] the rate among white infants in the lowland county of North Carolina was 48.1;[6] in the mountain county of North Carolina the rate was 80.4;[6] the rate in Wisconsin was 54.[7] The rate in Montana (although based upon an incomplete record of deaths) was 71 per 1,000.[8]

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[3] Detailed information in regard to maternal and infant care was secured only for the last confinement of each mother; in considering infant deaths, however, all the births occurring in the two years covered by the survey were included. Thus while detailed information was secured for only 664 live births, 699 live births occurred to the mothers visited during the two years covered by the survey. Six deaths occurred among these 35 nonschedule births.

[4] As in previous studies made by the Children's Bureau the rate is computed on the basis of the number of deaths at less than 1 year of age among infants born in the given period.

[5] Children's Bureau Publication No. 26, Maternity and Infant Care in a Rural County in Kansas, p. 40.

[6] Children's Bureau Publication No. 33, Rural Children in Selected Counties of North Carolina, p. 36.

[7] Children's Bureau Publication No. 46, Maternity and Infant Care in Two Rural Counties in Wisconsin, p. 69.

[8] Children's Bureau Publication No. 34, Maternity Care and the Welfare of Young Children in a Homesteading County in Montana, p. 70.

The accuracy of the infant mortality rate for Negro infants is open to more question than the rate for white, because of the greater obstacles to a complete canvass among Negro families. Therefore, for purposes of comparison, infant mortality rates are more sound which are based upon the whole maternity histories of the white and Negro mothers while resident in the area. Even these rates are likely to be an understatement of infant mortality, because mothers who had had many confinements often became confused as to the number and may have forgotten at the time to tell of the babies who died in early infancy. Since this was particularly true of Negro mothers, the figures show also an understatement of the difference between rates for white and Negro infants. The rate among white infants was 61.2 per 1,000 live births, while the rate for Negro infants was 107.3—a difference of 46.1 in favor of infants born to white mothers.

Medical care.—One of the most significant aspects of infant mortality was the small proportion of deaths attended by physicians. Information was secured as to the attendant at death for 43 of the babies who died at less than 1 year of age; only 15 were attended at death by a physician. Only 5 of the 9 white babies who died under 2 weeks of age were attended at death by a physician, and only 4 of the 6 who died over 2 weeks of age were attended by a physician. Of the 28 Negro babies who died at less than 1 year of age, only 6 were attended by a physician.

The proportion of deaths not attended by physicians was too large to be explained entirely by bad roads, poor telephone service, the distance of the family home from the physician, or by the fact that in some instances the baby died so suddenly that there was no time to call a physician. Parents often failed to realize that their children were sick, and did not appreciate the necessity of securing the best medical care possible for them.

One baby was sick for two days before death; her mother said "she seemed to have griping in the stomach and the stretches." The mother cut red onions and bound them on the child's hands and feet, but did not call a physician. Another Negro mother said she thought her baby died because she "couldn't keep the hives out on him." She said the baby was born "puny" because she had hoed right up to the time of confinement in very hot weather. This mother had had no prenatal care, a midwife had attended her at confinement, and no physician had been called for the baby. A white mother whose husband had not been able to get a physician for her confinement said that her baby had not been normal from birth, and he died when 6 days old. She seemed satisfied with the midwife's explanation that "the hives went in on it." This family

lived only 3 miles from a town with six physicians in it. One colored mother said that her baby had a hemorrhage from the navel shortly after birth, and that by the time they had brought the midwife back to tie the cord again, the baby had bled to death. Two colored babies died of whooping cough without the attention of a physician.

Causes of death.—Discussion of the causes of death is hampered at the outset by lack of complete registration. For 14 of the 49 infant deaths occurring in the period no death certificate was filed, and in 20 instances, although a death certificate was filed, no cause of death was entered on it. For only 15 cases could a physician's certificate showing cause of death be secured. Eight of these deaths were due to natal or prenatal causes (four of the eight to prematurity), and five to gastro-intestinal diseases.

Among white infants who died under 2 weeks of age the death rate per 1,000 live births was 40. The stillbirth rate, based on all births in the area studied, to mothers interviewed was 2 per cent for white infants and 4 per cent for Negro. About one-tenth of all pregnancies of both white and colored mothers resulted in miscarriage, a stillbirth, or a live-born infant that survived less than 2 weeks.

Obstetricians agree that most of the deaths under 2 weeks of age are due to prenatal and natal causes and can be prevented in large measure by good prenatal care and skilled care at confinement. In rural communities, where few mothers receive any prenatal care at all and where skilled help is not available, it is to be expected that the number of deaths in early infancy will be comparatively large. Reports on prenatal care were secured from 40 mothers whose babies were stillborn or died under 2 weeks of age. Only eight had any care, and only one had care that could be classified as fair: five of those who had care sought medical advice because they were ill during pregnancy. Information was secured also in regard to the kind of attendant present at 21 of the confinements resulting in a live-born infant who survived less than 2 weeks. Six of the 9 confinements of white mothers were attended by a physician and 3 by a widwife or other woman; 2 of the 12 confinements of Negro mothers were attended by a physician and 10 by a midwife or other woman. All 10 stillbirths to white mothers and only 1 of the 11 stillbirths to Negro mothers were attended by a physician.

Improper feeding also contributed to infant mortality in the county. One of the registered deaths occurred when the baby was about 2½ months old, about 2 weeks after the mother's death. Cow's milk had been used to supplement breast milk and the baby had been given solid food some time before his death. Another baby at 2

months of age had tastes of everything the family ate. The mother said that the baby had been bitten by mosquitoes a few days before its death and she attributed death to malaria rather than to improper feeding. Another baby weaned at 3 months of age died about four weeks later. The mother said she had tried cow's milk and then malted milk. She thought that the baby had measles, but the cause given on the death certificate was ileocolitis. Another mother said: "The baby was fine and healthy, but he had one of the spells I had at confinement (convulsions) and died of that and whooping cough."

CHILDREN'S HEALTH CONFERENCES.

In order to promote interest in child welfare, a series of children's health conferences were held in two counties in the State—in the county in which the intensive survey was made and in another located in the south central part of Mississippi which contains a city of more than 10,000 inhabitants known as one of the wealthiest cities in the South. This city was very progressive; it had well-paved streets, substantial public buildings, luxurious homes, good schools, and a good city hospital of 40 beds. Outside this city, however, the county was no more progressive than neighboring counties.

PREVIOUS PUBLIC HEALTH WORK.

An intensive sanitary survey of the southern county by the International Health Board (formerly the Rockefeller Sanitary Commission), in cooperation with the State board of health, had been completed in January, 1918, shortly before the children's health conferences began. As part of the work of the survey many persons were examined and treated for hookworm and many inoculated against typhoid. The survey also included a campaign for sanitary privies both in the city and in the rural districts of the county, and special attention was given to an educational campaign against pellagra.[9] The extensive public health work done through the sanitary survey made it possible to arrange for a series of children's health conferences with a minimum of effort and with some assurance of response from the parents.

During the previous year a birth registration test had been made in the city which disclosed the fact that about one-third of the births in the city were unregistered. The births of 22 per cent of the children brought to the children's health conferences were definitely reported as unregistered.

[9] Report of the Board of Health of Mississippi, 1915–1917, pp. 47–48. Jackson, Miss., 1918.

I.—THE CONFERENCE AT A COUNTRY SCHOOLHOUSE.

II.—AN EXAMINATION AT A NEGRO CONFERENCE.

ATTENDANCE AND PLACES OF MEETING.

The aggregate attendance at the 35 meetings held in the two counties was about 3,000. In both counties meetings were held in towns and in the country. Meetings were held in the courthouses of the county seats, in the country schoolhouses, in churches, one in an open-air pavilion in the picnicking center, and in one of the smaller towns the proprietor of a store suspended business for the afternoon and expressed pleasure in turning over his store "to the use of Uncle Sam." The babies were examined on the counter and stereopticon slides were shown in a dark corner at the back of the store. At some of the night meetings families straggled in late; having worked all day in the fields, they had then dressed the children, hitched up the horses, and driven to the conference.

EXAMINATION OF CHILDREN.

At these meetings children under 6 years of age were examined by a Government physician, and the results of the examination, together with special recommendations in regard to the care of the child, were written out and given to the person bringing the child for examination. In all, 544 children were examined by the physician, 375 white and 169 colored. If the examination revealed defects that needed special medical attention, the parents were told what was wrong and were advised to consult the family doctor. Measures were also recommended to promote better physical development. The advice given to many mothers concerned feeding alone. The physician explained to these mothers that they had been giving their children too much food, feeding them too often, or allowing them too much starchy food; and regularity of feeding and a well-balanced diet were recommended. At the end of one of the conferences one mother was heard to say emphatically that she would never have another case of "summer complaint" among her children.

EXHIBITS.

An exhibit was shown at some of the conferences of miniature models illustrating the proper clothing for a baby, baby's bed and mother's bed, and the equipment needed for bathing a baby and for preparing its food, and charts were shown illustrating various phases of child welfare. A small model of an iceless refrigerator and a homemade fireless cooker excited much interest. For conferences held at night, when neither models nor charts could be shown to advantage stereopticon slides were used. The men who attended the meetings often showed great interest in the exhibits, and said they were going to make play pens and separate beds for their babies and fireless cookers and iceless refrigerators for their wives.

RESULTS OF THE CONFERENCES.

The value of the conferences was primarily educational. The instruction received by individual parents was probably of no less importance than the impetus given to systematic public health work for mothers and children. The advisability of securing a full-time public health nurse for the county was widely discussed, and at many of the meetings the local committee circulated a petition to the county supervisors asking that such a nurse be employed. This movement was indorsed not only by parents but also by physicians and others prominent in the county. Several of the leaders among the colored people desired to secure a nurse to work among the colored people alone.

SUMMARY.

The intensive survey of maternity and child care was made in a farming section typical of northern Mississippi. Over one-half of the population was Negro, and three-fourths of the farmers visited were tenants.

Six hundred and seventy-five families were visited, and most of these were living in poorly constructed houses far too small to accommodate the whole family with any degree of comfort. Very few were plastered or ceiled on the interior, and about 40 per cent of the families were living two or more persons per room. Study of sanitary conditions disclosed the fact that only about one-fourth of the families had a privy of any kind, and of these over four-fifths had the insanitary open-back type. Only 11 per cent of the houses were adequately screened against flies and mosquitoes. Although it was possible to obtain good water by drilling deep wells, many families were using water from dug wells and from springs which were not well protected against surface pollution.

Investigation of the status of maternity care showed that the low standards were due in large measure to ignorance of the need of it, to the scarcity of physicians and nurses, and to poverty. There were 14 physicians in active practice in the area studied; there was no trained nurse working regularly in the county. The nearest hospital was 100 miles away. There were about 100 midwives practicing in the county, but a large majority of them were untrained, ignorant, and careless, and their methods were primitive and insanitary. While 79 per cent of the white women were attended at confinement by physicians, nearly 88 per cent of the colored women were attended by midwives.

Only 116 of the 675 mothers studied received any prenatal care; 9 of these received care that could be classed as fair, and only one received really adequate care. Less than one-tenth of the mothers attended by a physician received three or more calls from the doctor during the lying-in period; only 7 mothers had trained nurses; and less than one-fourth had care by a practical nurse or midwife. Most of the mothers had great difficulty in securing anyone to do the nursing or help with the housework, and the majority had to depend on relatives and neighbors. The lack of conveniences made housework a rather strenuous task, and almost all of the mothers were used to

doing farm chores and field work as well as housework. As it was so very difficult to hire help, many of the mothers had neither adequate relief from work before confinement nor a sufficient period of rest afterwards.

Children as well as mothers suffered from the lack of skilled medical and nursing care. Frequently the parents failed to recognize that children were seriously ill, and they were content to use home remedies and advice from neighbors rather than to secure the best medical attention possible. Analysis of feeding customs showed that while the custom of breast feeding was almost universal the mothers tended to nurse their babies too long and give them solid food or the regular family diet too soon. Although about 85 per cent were wholly or partially breast fed during the first year, at the age of 6 months 65 per cent were receiving solid food and 47 per cent were given what the rest of the family ate. One-fifth of the children were still partially breast fed at 2 years of age.

Incomplete birth and death registration handicapped the authorities in studying the problem of infant mortality.

Standards of living were lower and the inadequacy of maternity and child care more extreme among the Negroes than among the white families. Only 8 per cent of the Negroes were farm owners, and about 57 per cent were half-share tenants—the lowest in the scale economically. Their homes were smaller and more crowded than those of the white families and sanitation was not so good. The percentage of illiteracy was high (26 per cent) among Negro mothers. Few Negro mothers had received any prenatal care or been attended by a physician at confinement. A larger proportion of Negro than of white mothers did field work, and they had less relief from work before confinement and a shorter period of rest afterwards.

Children's health conferences were held in two counties for the purpose of stimulating interest in public health activities. Children were examined by a Government physician, and exhibits were shown. The meetings had a large attendance and much interest was aroused.

In view of the conditions found to exist in the county it was evident that the most necessary steps in securing better care for the mothers and children were: The employment of a public health nurse for the county, and a county or district health officer on full time; the establishment of a county hospital, with free care available for those unable to pay; provision for the training and supervision of midwives; and the enforcement of the birth and death registration laws. In addition, it seemed imperative that steps should be taken to deal effectively with the problem of illiteracy which existed to a serious degree among the poor white and Negro families.

CONCLUSIONS.

The conditions revealed by this inquiry are by no means peculiar to the county studied; they are more or less typical of those existing in many rural communities. They call for a general constructive program for the conservation of the lives and health of mothers and babies, and of older children as well. Among the essential hygiene features of such a program are:

1. A county public health nurse (preferably one for white and one for colored), who, by doing educational work through the schools, clubs, and other organizations and by practical demonstrations of home nursing and preparation of food for babies, could accomplish much toward improving maternity and child care.

2. A well-trained public health official, devoting his entire attention to health problems in the county or the district of which it might form a part.

3. A county hospital conveniently located for all residents of the county.

4. The birth and death registration laws strictly enforced.

5. The law to prevent blindness in the new-born strictly enforced.

6. Midwifery practice controlled.

INDEX.

Accidents: Page.
liability of children to 45–46
unavailability of medical care in time of 43–46
Acreage and tenure. *See* Farming conditions.
Artificial feeding. *See* Feeding, artificial.
Attendant, confinement. *See* Care, confinement.

Birth registration:
enforcement of 41, 50, 54, 55
incomplete 8, 47, 50, 54
reasons for 41
law providing for (1912) 41
Blindness in newborn, prevention of (law passed Jan., 1916) 17, 23, 55
Breast feeding. *See* Feeding, breast.
Bureau of vital statistics, law establishing (1912) 41

Campaigns, health. *See* Health campaigns.
Care, confinement:
attendant—
factors entering into selection of—
custom 27
distance 21, 28
economic condition of family 27–28, 32
kind of 26–28, 49
per cent distribution of mothers of specified race according to 27
costs and free service 31–33
Care, [redacted] postnatal
medical attention, inadequate 21, 28–29
nursing care, scarcity of 29–30, 44
resumption of work after confinement 30, 37, 39–40, 41, 54
Care, prenatal:
analysis of care given 25, 53
inadequacy of 24, 49
factors responsible for 21, 24
inadequacy of relief from work 40, 54
information through reading 26
use of home remedies 25
Childbearing. *See* Mortality, maternal, causes of.
See also Work of mothers in relation to childbearing.
Children in study, number of 8
Children's health conferences. *See* Health conferences, children's.

Colored people. *See* Negroes. Page.
Communication, means of 10
Compulsory school-attendance law, lack of 15–16
Confinement:
care during. *See* Care, confinement.
costs of 31–33
length of 30
Conveniencies on the farm, lack of 36, 53
Costs of confinement:
by economic status of family 32–33
itemized 31–33
total, and free service 31
Counties, selection of. *See* Scope and method of the survey.
County, population of. *See* Population.
County public health nurse. *See* Public health nurse (county).
County public health officer. *See* Public health officer (county).
Cows, milch, percentage of families having 12
Crops and live stock. *See* Farming conditions.
Cultivation of land, extent of 11

Death registration, incompleteness of 41, 47, 49, 54
Death registration area, cities admitted to 41
Deaths. *See* Mortality.
Deformities. *See* Illnesses, deformities, and accidents.
District health officer. *See* Public health officer (county).

Economic status of family, relation of, to cost of confinement 32–33
Economic and social background of families visited 9–20
Education:
children—
lack of compulsory school-attendance law 15
length of school terms 15–16
mothers
instruction by home demonstration and agriculture agents 16
need of instruction—
in infant care 42
in maternity care 21, 24, 53
See also Illiteracy.
Examination of children, medical. *See* Medical examination of children.

Page.

Exhibits in child welfare:
nature of 7–8, 51
results of 51–52

Families, number interviewed 8, 53
Farmers:
owners—
economic status 13, 14
percentage of 13
Negro 15, 54
white 15
size of farms 14
tenants—
economic status 12–13, 54
illiteracy *15
length of tenancy 14–15
percentage of 13, 53
Negro 13
white 13
size of farms worked 14
Farming conditions:
climate 11
crops and live stock 12
removals from farm to farm 14
soils 11
tenure and acreage 12–14
Feeding:
artificial—
liquid food—
percentage of children receiving, by age 43
solid food—
kinds of 42–43
percentage of children receiving, by age 43, 54
breast, prevalence of 42–43, 54
improper, relation of, to infant mortality 49
mixed, extent of 43, 54
Free medical service in confinement cases 31

Gastro-intestinal diseases. *See* Mortality, infant, causes of.
Government physician. *See* Physician, Government.

Health campaigns:
agencies responsible for 50
nature of 17, 50
results of 17, 50
Health conferences, children's:
activities—
examination of children—
by whom examined 7, 51, 54
number examined 51
exhibits 51, 54
attendance 51, 54
location 7, 50
places of meeting 51
purpose 50, 54
results 51–52
Health officer, county. *See* Public health officer (county).
Health program suggested as result of study 54, 55
Health work, public. *See* Public health work.
Hemorrhage. *See* Mortality, maternal, causes of.
Home demostration and agriculture agents. *See* Education.
Home remedies, use of—
during pregnancy 25–26
for children 46–47
Hookworm, campaign against 17, 50
Hospitals:
county, need of 54, 55
inaccessibility of 21, 43, 53
Housing and sanitation:
congestion 18–19
average number of persons per room 19, 53
average number of persons per sleeping room 19
privies—
sanitary, campaign for 50
type of 20, 53
screening 19, 53
types of houses 18, 53
water supply 9, 19, 53

Ileocolitis. *See* Mortality, infant, causes of.
Illegitimacy, extent of 23
Illiteracy, extent of 15, 42, 54
Illiteracy of midwives. *See* Midwives.
Illnesses, deformities, and accidents of children.
home remedies used 46
medical care 43–44
nursing care 44–45
Industry, principal 11–12
Information obtained by mothers, sources of:
in infant care 16, 42
in maternity care 26
International Health Board (in cooperation with the State board of health):
campaign by 50
survey by 17, 50

Land, cultivation of 11
Land tenure, plantation system of 12–13
Literature, instruction of mothers through:
in infant care 42
in maternity care 26
Live stock. *See* Farming conditions.
Lying-in period, care during. *See* Care, confinement.

Mail service. *See* Communication, means of.
Malaria:
campaign against 17
pernicious. *See* Mortality, maternal, causes of.
Marriage, average age at 23
Maternal mortality. *See* Mortality, maternal.

Page.

Maternity care. *See* Care: confinement; postnatal; prenatal.
Maternity histories of mothers visited ---- 23
Medical examination of children:
number examined ---- 51
places of examination ---- 50
results of ---- 51–52
Medical service, free, in confinement cases ---- 31
Midwives:
attendance by, relation to maternal mortality ---- 21–22
dangerous methods of ---- 42, 53
fees of ---- 32
illiteracy of ---- 21–22, 41
percentage of mothers attended by ---- 26–27
registration of ---- 17, 23
registration of births by ---- 23, 41
status of ---- 21–22
superstitions of ---- 22
supervision of ---- 23, 54, 55
Milk, percentage of families having own supply ---- 12
Mississippi State Board of Health. *See* State board of health.
Mortality, infant:
causes of ---- 49–50
proportion of deaths attended by physicians ---- 48
rates ---- 47
comparison of white and Negro ---- 48
comparison with cities ---- 47
comparison with other rural districts ---- 47
relation of lack of prenatal and natal care to ---- 49
Mortality, maternal:
causes of ---- 33–34
relation of midwife attendance to ---- 21–22
Mothers in study, number of ---- 8
Mothers, unmarried, number of ---- 23
Negroes:
babies in study—
feeding customs ---- 42–43
number ---- 8
farm owners—
average size of farms ---- 14
number ---- 15, 54
housing and sanitary conditions of ---- 18–20, 54
illiteracy, extent of ---- 15, 54
marriage, average age at ---- 23
mothers as economic heads of families, number ---- 15
mothers interviewed, percentage ---- 9
percentage in county ---- 9, 53
percentage in State ---- 9

Page.

Negroes—Continued.
pregnancies, frequency of ---- 23
tenants—
average size of farms worked ---- 14
economic position ---- 13, 54
length of tenancy ---- 14–15
Nephritis. *See* Mortality, maternal, causes of.
Nursing care, unavailability of ---- 29–30, 44, 53

Pellagra, campaign against ---- 17, 50
See also Mortality, maternal, causes of.
Physician, Government, examination of children by ---- 7, 51, 54
Physicians:
infant deaths attended by ---- 48
mothers attended by ---- 26–28, 49
number of, in county ---- 21, 44, 53
unavailability of ---- 43–44
Plantation system of land tenure ---- 12–13
Population (census of 1910):
county (Negro, rural, urban, white) ---- 9
State (Negro, white) ---- 9
Postnatal care. *See* Care, postnatal.
Pregnancy:
care during. *See* Care, prenatal.
use of home remedies during ---- 25–26
work during ---- 37–39, 41
See also Mortality, maternal, causes of; *see also* Maternity histories.
Prematurity. *See* Mortality, infant, causes of.
Prenatal care. *See* Care, prenatal.
Privies. *See* Housing and sanitation.
Program, health, suggestions for ---- 54, 55
Public health nurse (county), need of ---- 23, 29, 52, 54, 55
See also Nursing care.
Public health officer (county):
appointment of ---- 16
duties of ---- 16
need of full-time ---- 17, 54, 55
salaries of ---- 17
Public Health Service, United States, cooperation of, in study of pellagra ---- 17
Public health work:
activities—
campaigns against diseases ---- 17, 50
investigation of sanitary conditions ---- 16, 20, 50
administration—
health officer, appointment of ---- 16
duties of ---- 16–17
salaries of ---- 17
sanitary inspector. *See above*, health officer.
Puerperal septicemia. *See* Mortality, maternal, causes of.

Page.

Railroads. *See* Communication, means of.
Reading, instruction through:
in infant care 42
in maternity care 26
Registration:
births. *See* Birth registration.
deaths. *See* Death registration.
midwives. *See* Midwives, registration of.
Roads, condition of. *See* Communication, means of.
Rockefeller Sanitary Commission. *See* International Health Board.
Rural county nurse. *See* Public health nurse (county).

Sanitary inspector. *See* Public health officer.
Sanitation. *See* Housing and sanitation.
School attendance. *See* Education.
School terms. *See* Education.
Scope and method of the survey:
selection of counties 7, 8, 9
sources of information 8
Screening. *See* Housing and sanitation.
Selection of counties. *See* Scope and method of the survey.
Social and economic background of families visited 9–20
Soil-pollution diseases, campaign against 17
Soils. *See* Farming conditions.
Sources of information:
obtained by the bureau—
See Scope and method of the survey.
obtained by mothers—
in infant care 42
in maternity care 26

Pa

Specialists, unavailability of 43
State board of health:
bureau of child welfare advocated by
campaign and survey by (in cooperation with the International Health Board) 17
rules by
Stillbirths, percentage of
Telephones. *See* Communication, means of.
Tenant farmers. *See* Farmers; tenants.
Tenure and acreage. *See* Fa conditions.
Trained nurse. *See* Public h nurse.
See also Nursing care.
Tuberculosis. *See* Mortality, n nal, causes of.
Typhoid, campaign against
United States Public Health Se *See* Public Health ice, United States.
Vital statistics, bureau of. *Se* reau of Vital statist

Water supply. *See* Housing sanitation.
Weaning, ages of
Work of mothers in relation to bearing:
after confinement—
resumption of work
before confinement—
nature of work
relief from work
usual farm and hous work—
assistance, kind of
conveniences, lack of
nature of

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